Installation Instructions for:

INTERCOOLED SUPERCHARGER SYSTEM 2004-2006 FORD 5.4L 3V F-150 TRUCK

Step-by-step instructions for installing the best in supercharger systems.

Magnuson Products Inc
1990 Knoll Drive, Ventura, CA 93003
(805) 289-0044 * (805) 677-4897 fax
magnusonproducts.com * magnacharger.com

89-89-65-001 Rev C

INSTALLATION MANUAL
Magna Charger
FORD 5.4 Liter 3V Engine,
2004-2006 F-150 TRUCK

Please take a few moments to review this manual thoroughly before you begin work: A quick parts check to make certain your kit is complete (See shipper parts list in this package). If you discover shipping damage or shortage, please call our office immediately. Take a look at exactly what you are going to need in terms of tools, time, and experience. Review our limited warranty with care. When unpacking the supercharger kit **DO NOT** lift the supercharger assembly by the black plastic bypass actuator. This is pre-set from the factory and can be altered if used as a lifting point!

Caution: Relieve the fuel system pressure before servicing fuel system components in order to reduce the risk of fire and personal injury. After relieving the system pressure, a small amount of fuel may be released when servicing the fuel lines or connections. In order to reduce the risk of personal injury, cover the regulator and fuel line fittings with a shop towel before disconnecting. This will catch any fuel that may leak out. Place the towel in an approved container when the job is complete. **Use only premium fuel, 91 octane or better.**

Magna Charger systems are manufactured to produce about 20 RWHP per pound of boost at sea level. High altitudes will produce different numbers.

Our Magna Charger kits are designed for engines in good mechanical condition only. Installation on high mileage or damaged engines is not recommended and may result in engine failure, for which we are not responsible. Magna Charger is not responsible for the engine or consequential damages.

Aftermarket engine re-calibration devices that modify fuel and spark curve (including, but not limited to programmers) are not recommended and may cause engine damage or failure. Use of non-Magna Charger approved programming will void all warranties. If you have any questions, call us.

Note: 2004 owners will need to replace the water pump pulley with a 2005-2006 water pump pulley.
Ford part number # F7UZ-8509-AA

After you finish your installation and road test your vehicle, please fill out and mail in the limited warranty card, so we can add you to our files (this is important for your protection).

A new fuel filter is recommended at the time of supercharger installation.
Autolite spark plug #HT0 is recommended
Drive belt= Gates# K061265
Air Filter= K&N# E-0945

Tools Required:

Metric wrench set
1/4” - 3/8” and 1/2” drive metric socket set (Standard & Deep)
3/8” and 1/2” drive Foot pound and inch pound torque wrenches
9/16” Spark plug socket, Snap-on #S9716KR
Phillips and flat head screwdrivers
Fuel line quick disconnect tools (included in kit)
Small or angled 3/8 drill motor
Drain pan
Hose cutters
Hose clamp pliers
Safety glasses
Metric Allen socket set 3/8 drive
Shop vacuum cleaner

Contact information:
Magnuson Products Inc
Magna Charger Division
1990 Knoll Drive
Ventura, CA 93003
Sales/Tech support 805-289-0044
Web sites:
www.magnusonproducts.com
www.magnacharger.com
E-mail:
info@magnacharger.com

1. Start the supercharger installation by removing the negative (-) battery with a 10mm wrench.

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3. Remove the air tube with a 10mm socket wrench.

4. Remove the air tube assembly by lifting it up and pulling it towards the passenger (right) side.

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8. Disconnect the eight ignition coil connectors by squeezing the release trigger and pulling the connectors free.

9. Remove the bolt that secures the coil to the cylinder head with a 7mm socket wrench.

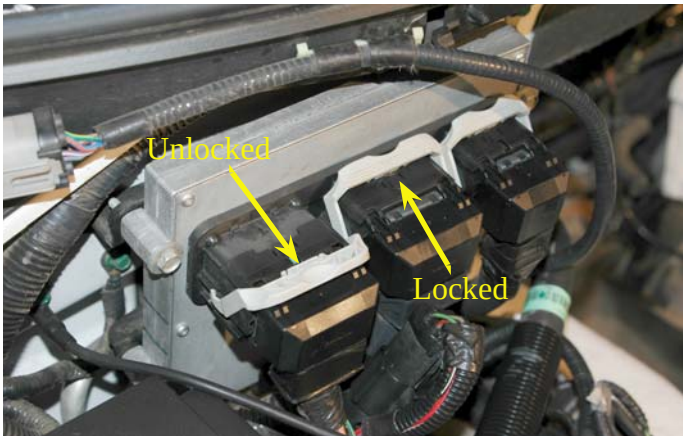
10. Remove the eight ignition coils by carefully pulling up on them.

11. The standard spark plugs will need to be replaced with the Autolite HT0 spark plugs supplied. Use an appropriate 9/16" spark plug socket to remove and replace the plugs. Use of a standard "deep" socket will break the spark plugs.

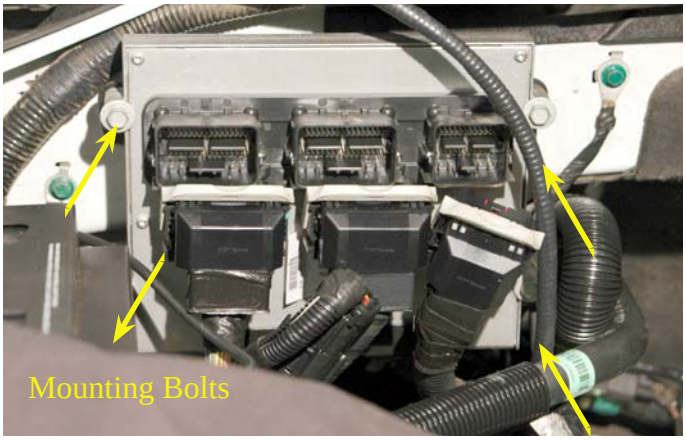
Autolite HT0 Spark Plug

12. Remove the standard spark plugs and replace them with the Autolite HT0 spark plugs supplied. Use a 9/16" spark plug socket, extention and wrench. Torque the spark plugs to 22 ft-lbs.

13. Unlock the three vehicle computer connections by pulling the grey release levers forward. Remove the three connectors by pulling them straight out.



14. Remove the four computer mounting bolts with a 10mm socket wrench.



15. Remove the computer from the vehicle.

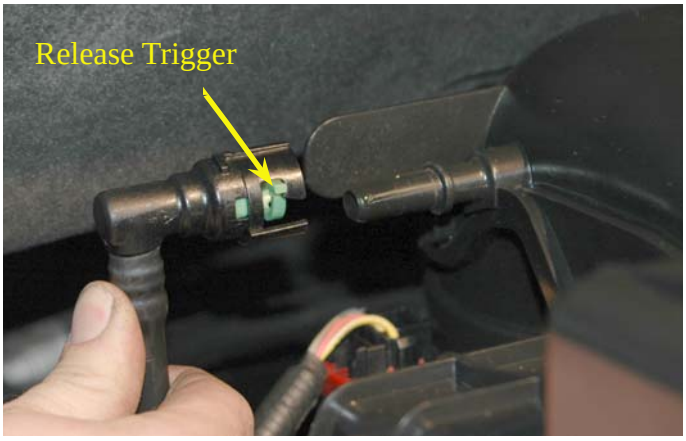
16. Here are the shipping materials supplied to quickly ship the vehicle computer.

17. Place the computer into the plastic packaging material supplied and then seal the box.

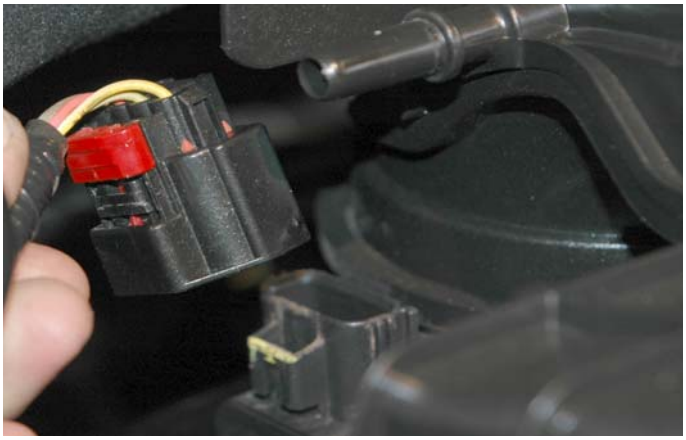
18. Completely fill out the pre-paid shipping form supplied and then remove the adhesive label on the third page, placing it on the top of the box. Take the box to your nearest UPS office for shipping. Your computer will be re-programed and quickly returned to you via UPS.

19. Remove the Mass Air Flow (MAF) connector on the top of the air filter box by pulling out the red release trigger and then pulling the connector free.

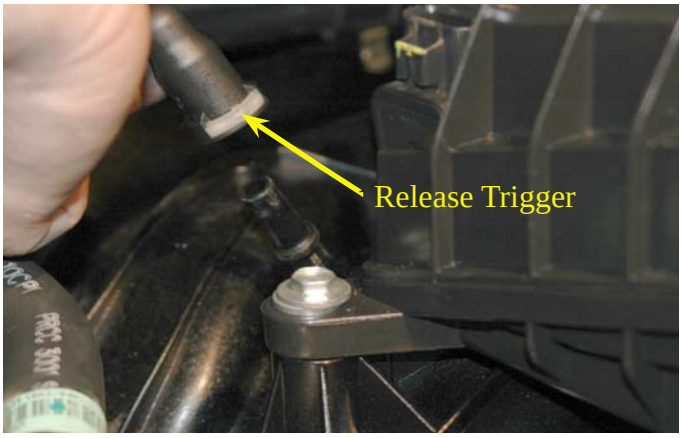
20. On the side of the air box remove the EVAP hose connector by pushing down on the green release trigger and pulling the connector free.



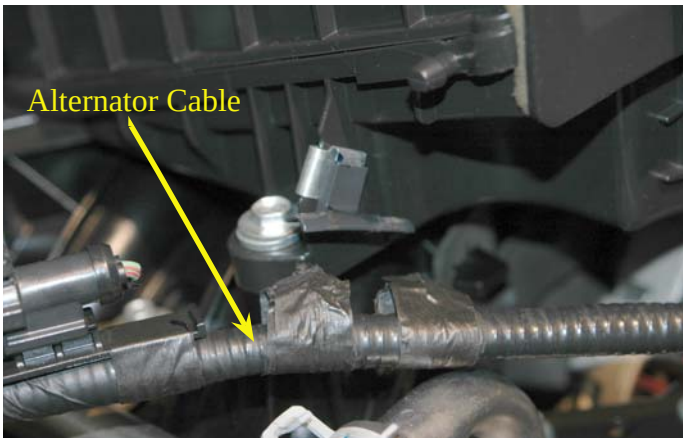
21. Remove the Mass Air Flow (MAF) connector on the top of the air filter box by pulling out the red release trigger and then pulling the connector free.



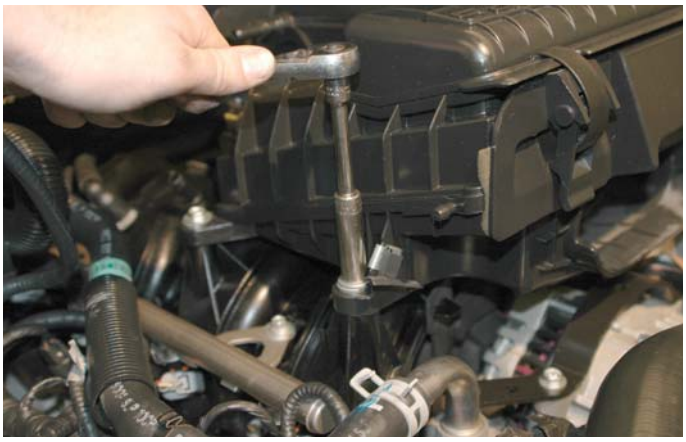
22. At the rear of the intake manifold remove the PCV hose connector by pushing in on the white release trigger and pulling the connector free.



23. Remove the alternator cable from the anchor on the air box by cutting the tape that secure it.



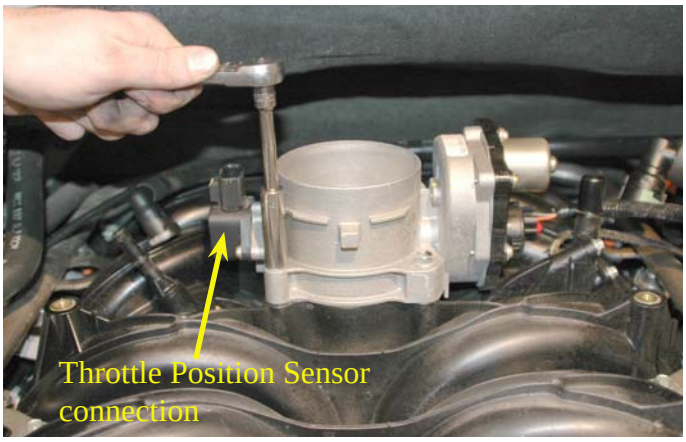
24. Remove the four air filter box bolts from the intake manifold with a 10mm socket wrench.



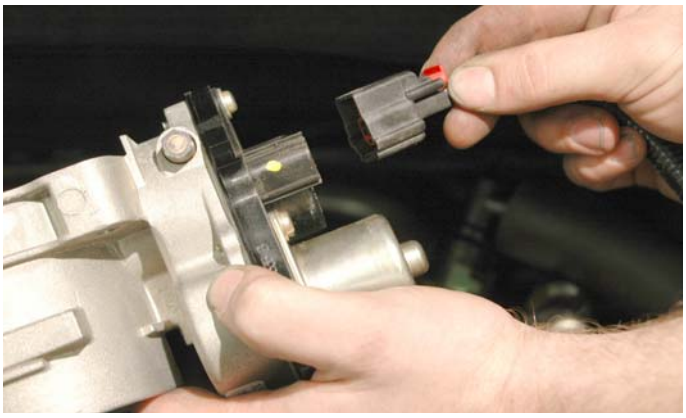
25. Lift the air filter box off the intake manifold.

26. Remove the PCV connector by pushing the green release trigger and pulling the connector free.

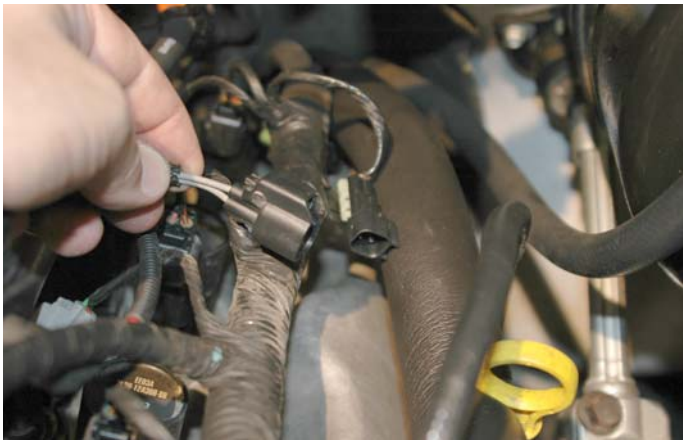
27. Pull up on the red release trigger of Throttle Position Sensor (TPS) connector and pull the connector free. Next remove the four throttle body bolts from the intake manifold with a 10mm socket wrench.



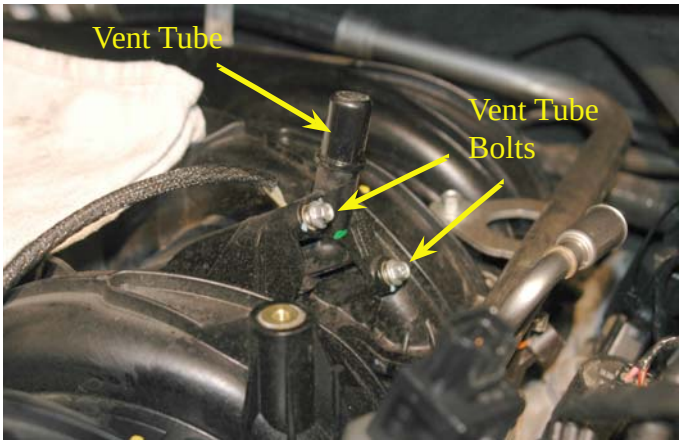
28. With the throttle body unbolted from the intake manifold, pull up on the red release trigger of Electronic Throttle Control (ETC) connector and pull the connector free. Set the throttle body aside for later installation.



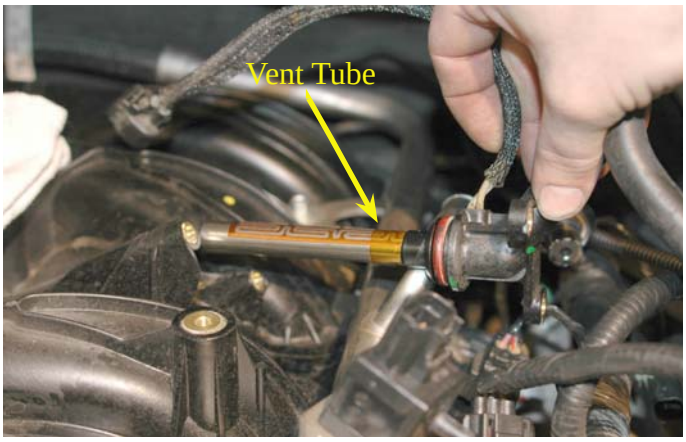
29. Disconnect the PCV vent tube electrical connector.



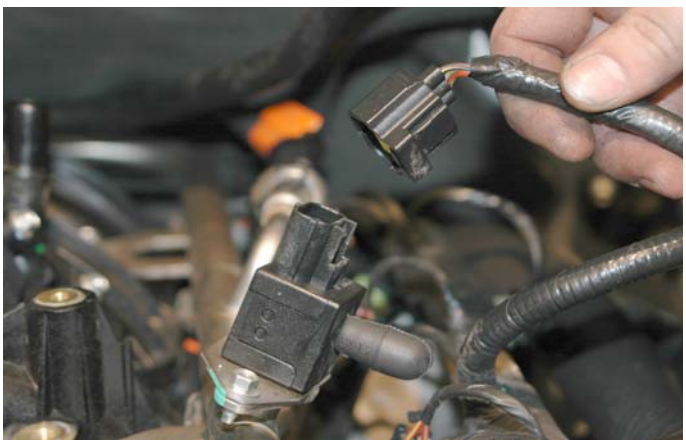
30. Using a 8mm socket wrench, unbolt the PCV vent tube from the intake manifold.



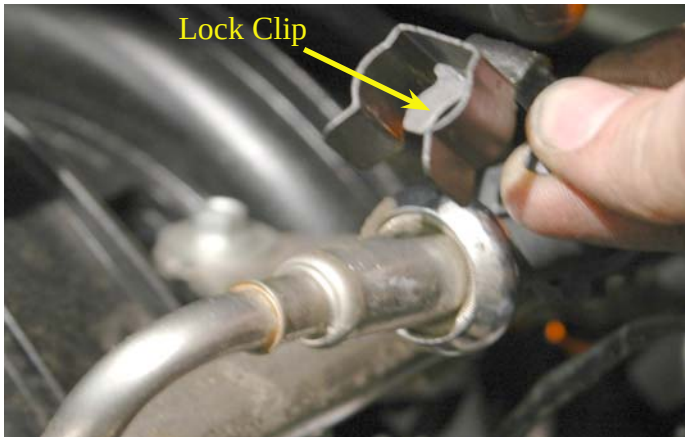
31. Carefully withdraw the PCV vent tube from the intake manifold.



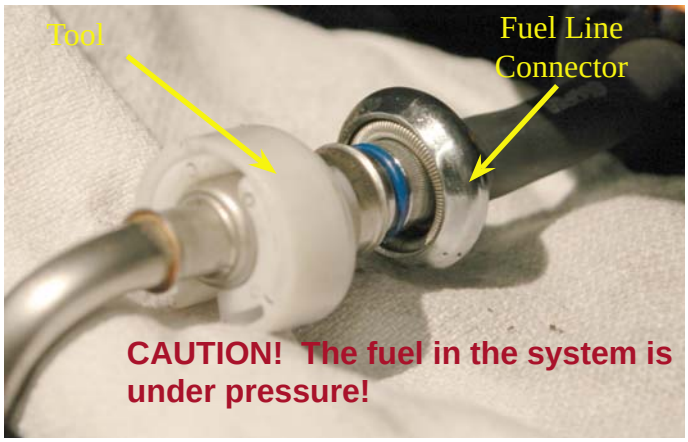
32. Remove the Fuel Pressure Sensor connector by pushing in on the white release trigger and pulling the connector free.



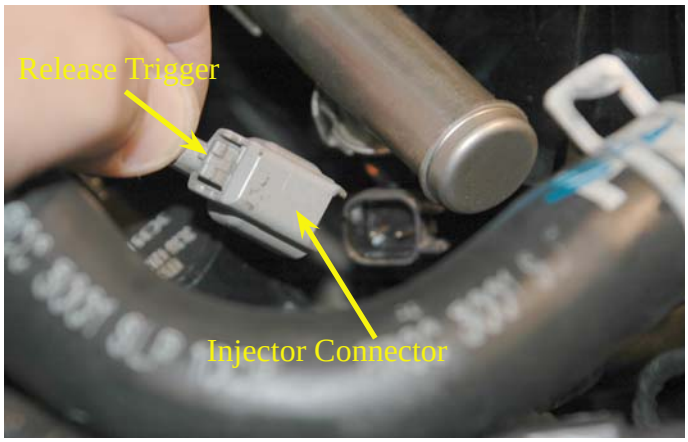
33. Remove the fuel line lock clip.



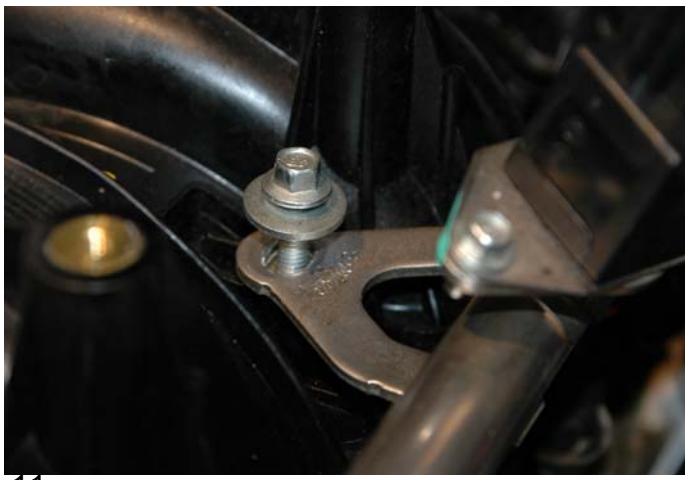
34. Use the supplied removal tool to remove the fuel line connector. **CAUTION! The fuel in the system is under pressure! Use caution when disconnecting the fuel line**. Collect any spilled fuel with a shop towel.



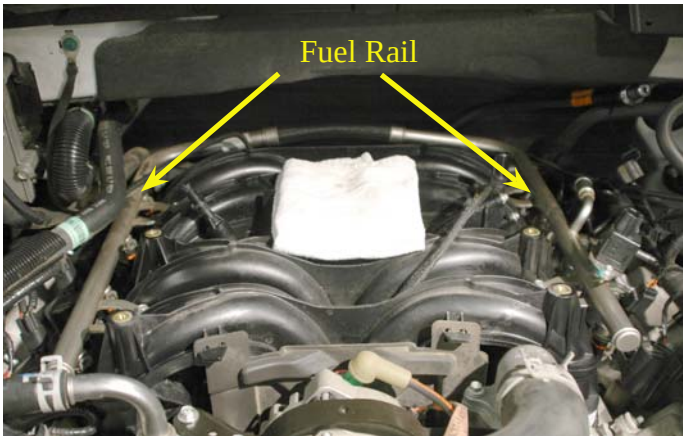
35. Squeeze the release trigger on the eight injector connectors and then pull them free.



36. Remove the fuel rail assembly with the injectors from the intake manifold by removing the four bolts that secure the fuel rail with a 8mm socket wrench.

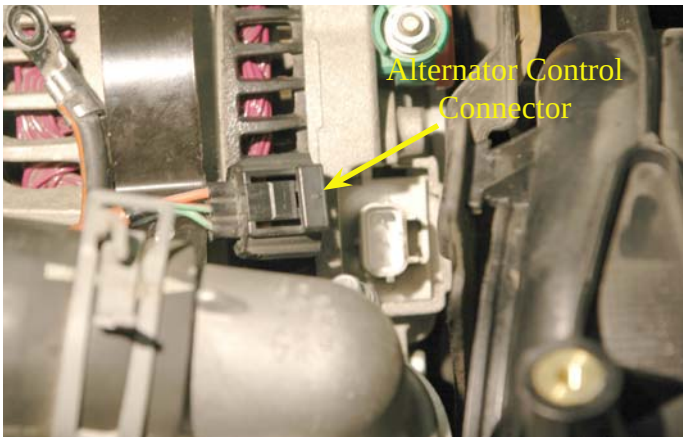


37. After removing the four bolts, pull up on the fuel rail and wiggle it to release the injectors from the intake manifold.

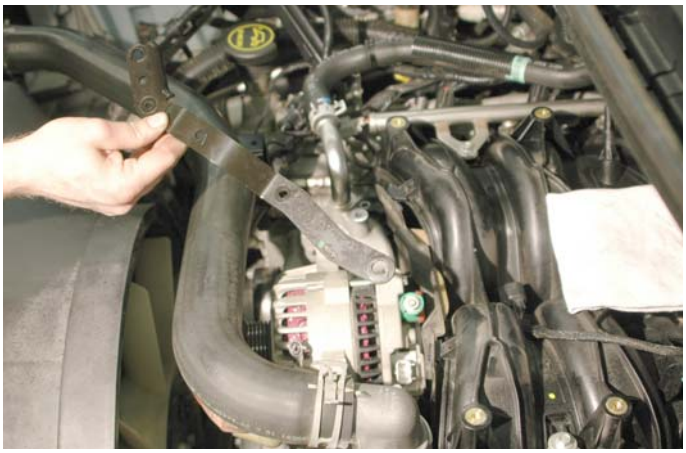


38. Disconnect the alternator cable connection with a 10mm wrench.

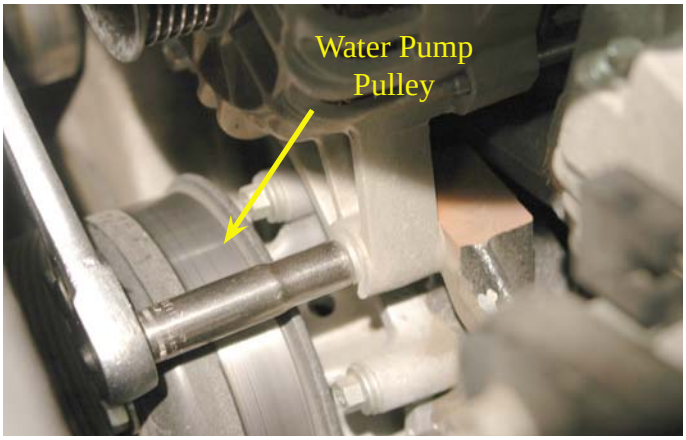
39. Disconnect the alternator control connector by squeezing the connector and pulling it free.



40. Remove the alternator bracket by removing the three retaining bolts with a 10mm socket wrench.

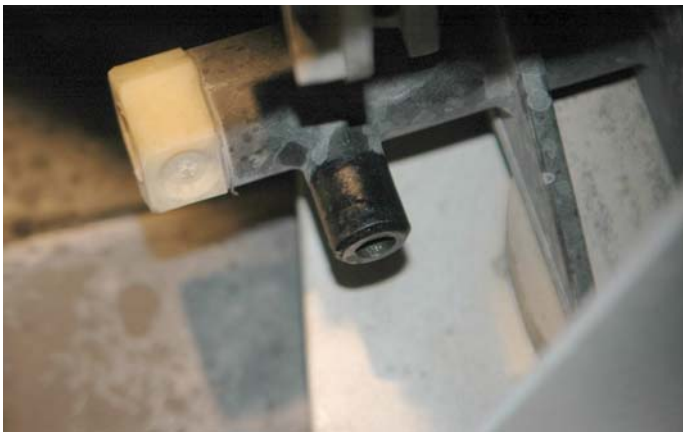


41. Remove the two alternator mounting bolts below the alternator with a 12mm socket wrench. Note: 2004 owners will need to replace the water pump pulley with a 2005-2006 water pump pulley at this time. Ford part # F7UZ-8509-AA.

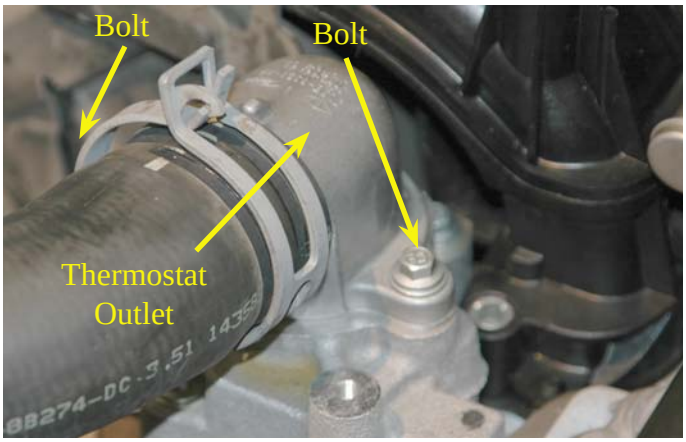


42. Remove the alternator and set it aside.

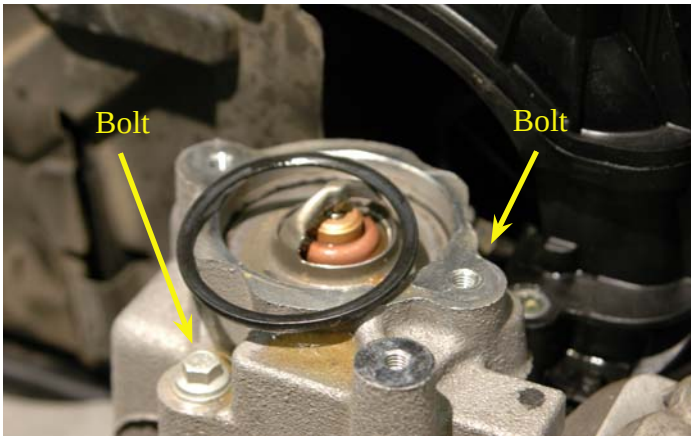
43. On the right, lower corner of the radiator locate the drain valve. Open the drain valve only if the engine is cool. CAUTION! Do not open the drain valve if the vehicle is still hot. Allow the vehicle to cool first. The cooling system is under pressure! Relieve the pressure in the cooling system by removing the radiator reservoir cap first. Collect the coolant in a suitable drain pan.



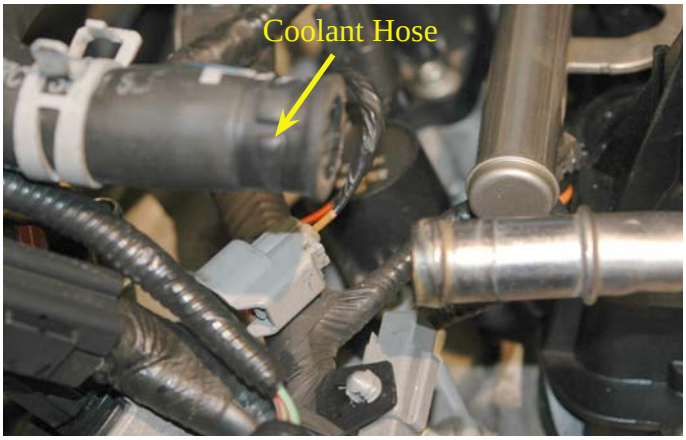
44. Remove the upper radiator hose by squeezing the spring clamps at each end with a pair of pliers and the pulling the hose free. Next, remove the two bolts that secure the thermostat outlet with a 10mm socket wrench.



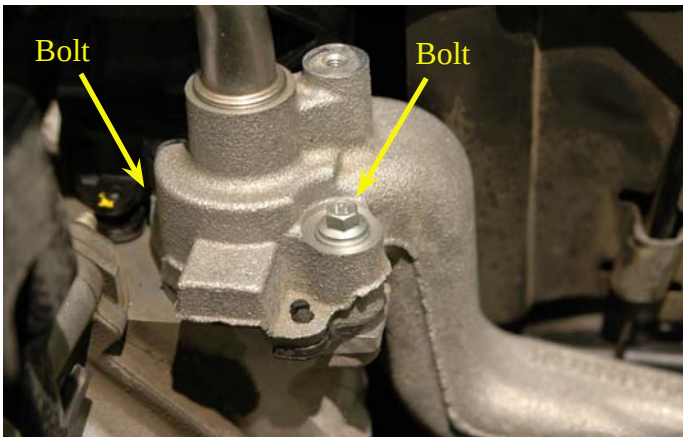
45. Remove the thermostat outlet and O-ring seal from the water manifold. Next, remove the two bolts that secure the water manifold to the cylinder head with a 10mm socket wrench.



46. Remove the coolant hose from the water manifold by squeezing the spring clamp with a pair of pliers and pulling the hose free.

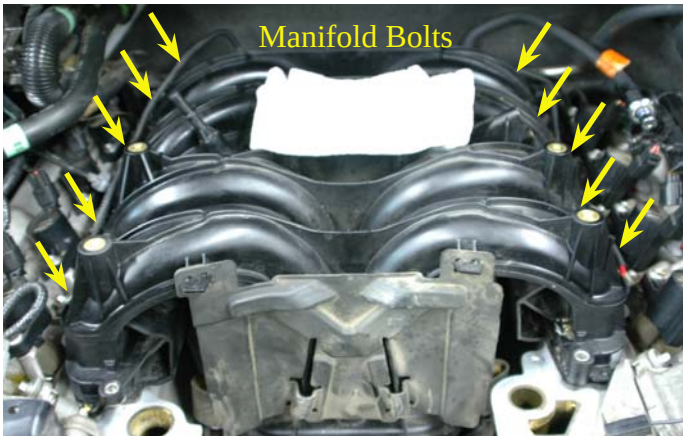


47. Remove the water manifold by removing the two bolts on each side with a 10mm socket wrench.



48. Remove the water manifold.

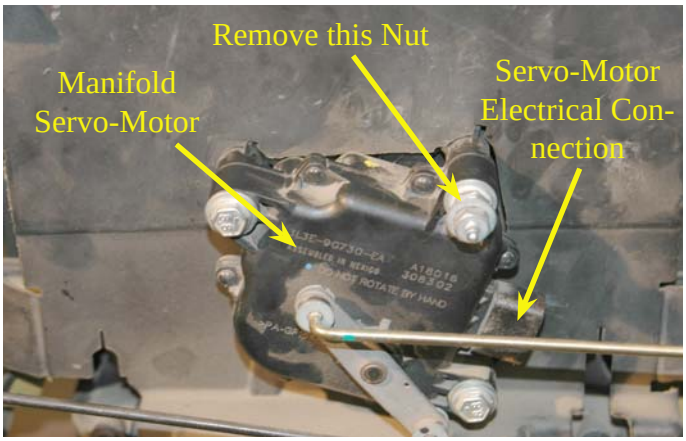
49. Remove the ten bolts (five on each side) that secure the intake manifold to the cylinder heads with a 10mm socket wrench.



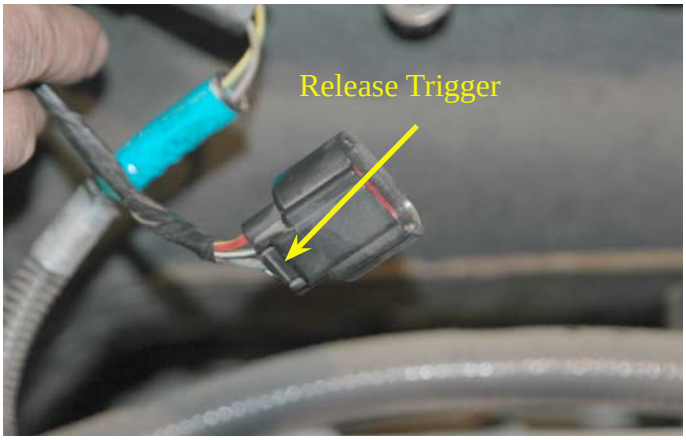
50. Though the intake manifold is now “loose”, it cannot be removed from the engine as there are still some connections on the back of the manifold that need to be undone.

51. Lift the manifold and pull it forward to gain more room to work on the connections on the rear.

52. The large wiring harness passing across the rear of the engine is attached to the rear of the intake manifold by nut located on the manifold servo-motor. Remove this nut with a 10mm socket wrench and pull the harness free. Note the location of the servo-motor electrical connection.

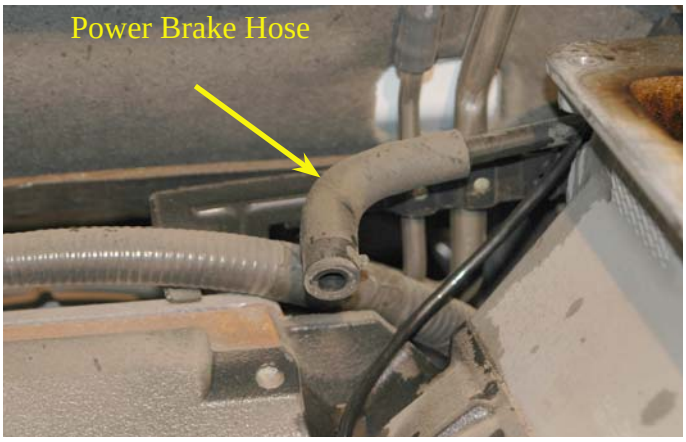


53. Remove the manifold servo-motor connection by squeezing the release trigger and pulling the connector free.

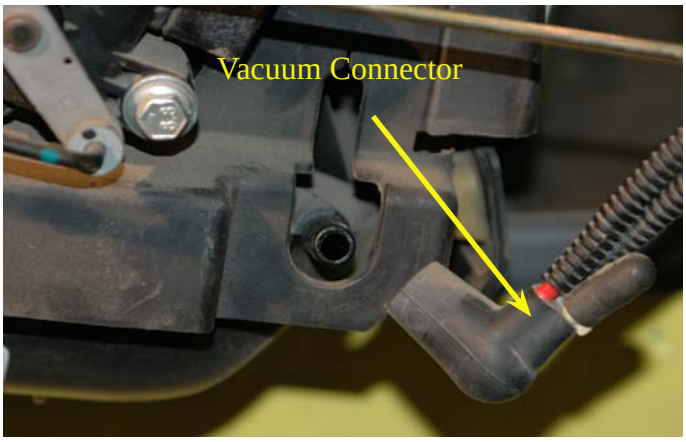


54. Disconnect the Knock Sensor connections. There will be one on each side of the manifold at the rear. Squeeze the connectors to separate them. Untangle the knock sensor wires from the servo-motor control rods.

55. On the lower driver side (left) rear corner of the intake manifold is the power brake vacuum connection. Squeeze the clamp with a pair of pliers and pull the hose free. After the manifold has been removed, remove this vacuum line from where it attaches to the back of the cylinder head.

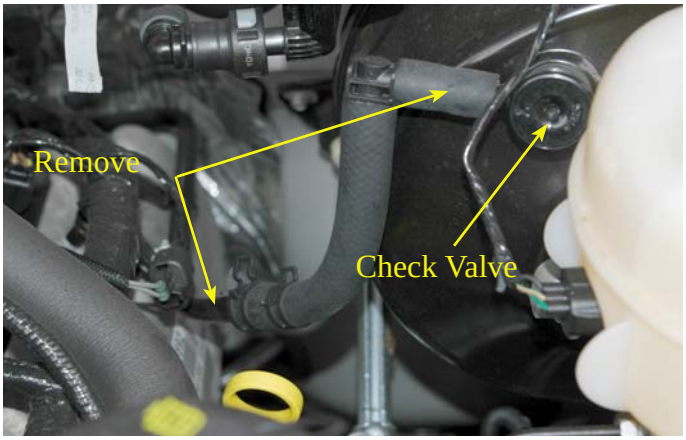


56. On the lower passenger side (right) rear corner of the intake manifold is a vacuum connection. Pull the connector free and disconnect the other end from the fuel pressure sensor and 4WD check valve on **2004** models.

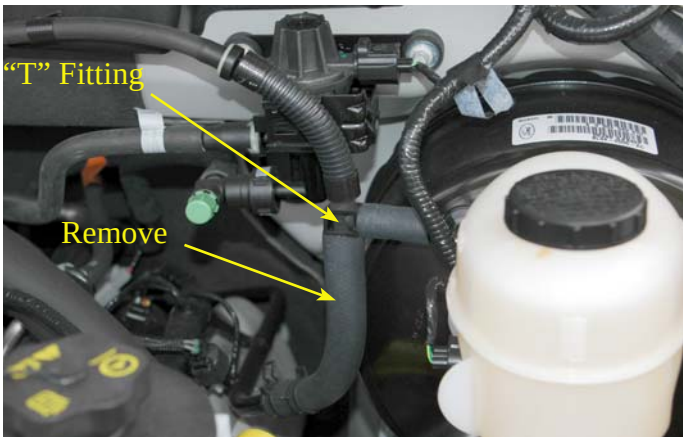


57. Once all connections are removed from the rear of the manifold, remove it from the engine.

58. On all 2WD and **2004 4WD** vehicles remove the brake vacuum line where it meets the check valve.

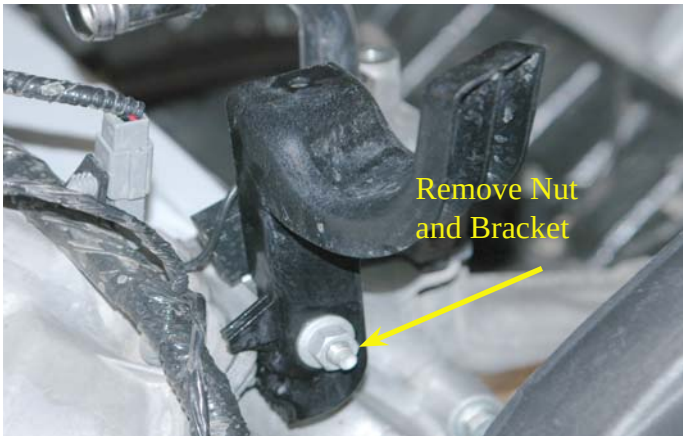


59. On **2005-2006 4WD vehicles** remove the brake vacuum line where it meets the "T" fitting.

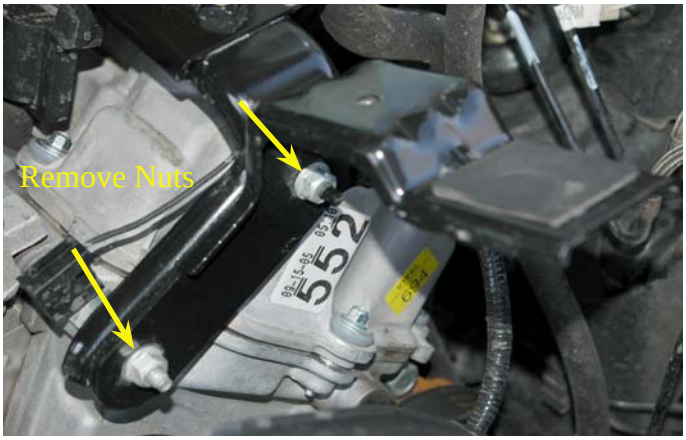


60. Clean the gasket surfaces and then cover them with tape or shop towels to keep debris from entering the ports.

61. Remove the nut and then the hose support bracket from the front of the right cylinder head with a 13mm socket wrench.



62. Remove the two nuts and the air tube bracket from the front of the left cylinder head with a 13mm socket wrench.



63. Re-install the two nuts previously removed in the last step to secure the power steering fluid reservoir.

64. Carefully remove the throttle body gasket from the intake manifold.

65. Carefully remove the intake manifold gasket from each side of the manifold.

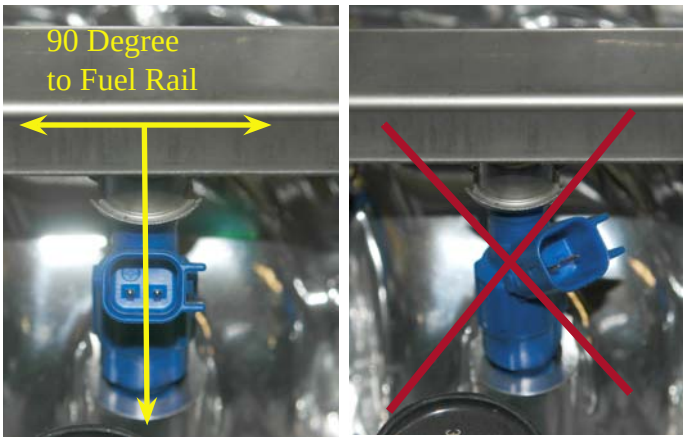
66. Remove the eight standard fuel injectors from the fuel rail by carefully prying the retaining clips off the rail with a small screwdriver. With the clips removed, pull the injectors off of the rail.

67. Using some of the grease supplied, lubricate the injector O-rings and install the supplied injectors . The clips will not be re-used.

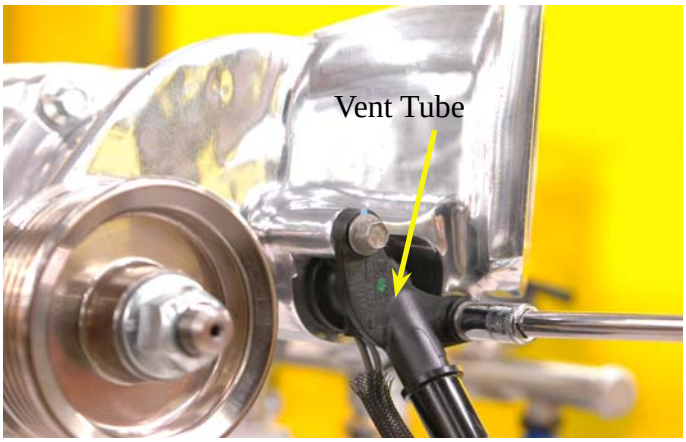
68. Using some of the grease supplied, lubricate the lower injector O-rings. Carefully install the fuel rail assembly with the injectors onto the supercharger manifold. Take care to align each injector with its hole in the manifold.

The following steps are important!

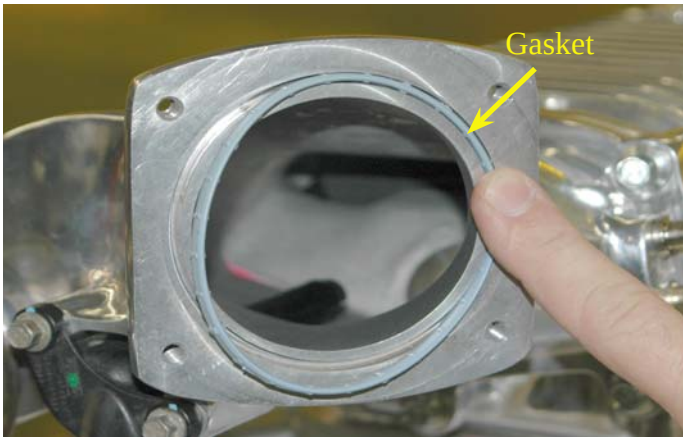
1. Rotate the injectors so that the injector electrical connector is at a right angle to the fuel rail, pointing straight out to the sides of the vehicle.
2. Use the original fuel rail bolts and tighten them to 89 in-lbs (10Nm) using a torque wrench and 8mm socket.



69. Install the PCV vent tube assembly into the hole in the inlet manifold. Use the original bolts and tighten them to 89 in-lbs (10Nm) using a torque wrench and 8mm socket.



70. Install the throttle body gasket into the groove in the inlet manifold flange.



71. Using the length of hose supplied, cut a 60" length and connect one end to the passenger side intercooler barb as shown. Secure the hose with the #10 clamp supplied.

72. Clean and inspect the manifold gaskets removed from the original intake manifold. Install the gaskets onto the supercharger manifold, they will "snap" into place.

73. Here are the manifold drain hose components ready for assembly.

IMPORTANT:
DRAIN LOWER PLENUM AT EVERY OIL SERVICE
SEE SUPERCHARGER OWNERS MANUAL
IMPORTANT:
DRAIN LOWER PLENUM AT EVERY OIL SERVICE
SEE SUPERCHARGER OWNERS MANUAL

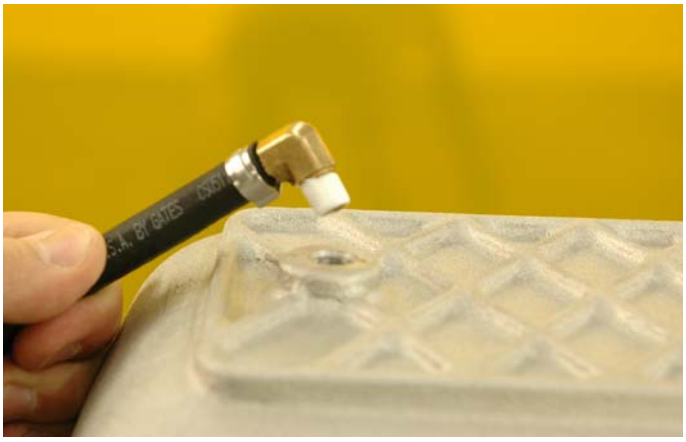
74. Assemble the supercharger manifold drain hose assembly by sliding the 2 crimp-clamps onto the length of hose. Apply some oil or light grease onto the barbed ends of the fittings. Insert the fittings into the ends of the hose and push the hose on firmly.

75. Secure the fittings by crimping the clamps with a pair of side cutting pliers. Take care to only crimp the clamps, not cut them.

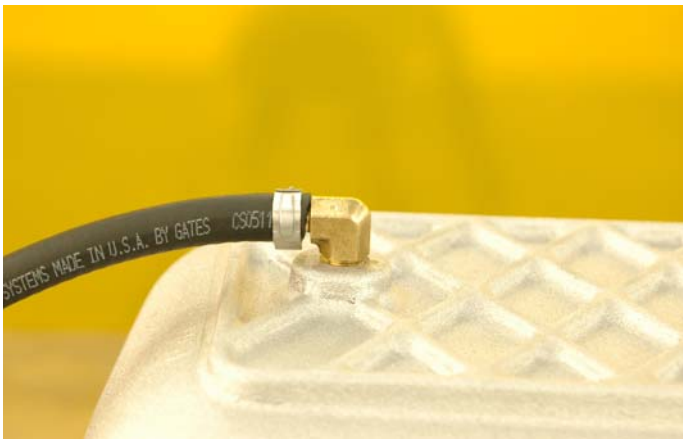
76. Install the plug into the threaded female fitting tightening it securely. Apply one of the yellow service instruction stickers to the end of the hose. The remaining service instruction stickers will be installed in a later step.

77. Here is the assembled hose ready for installation in the bottom of the supercharger manifold.

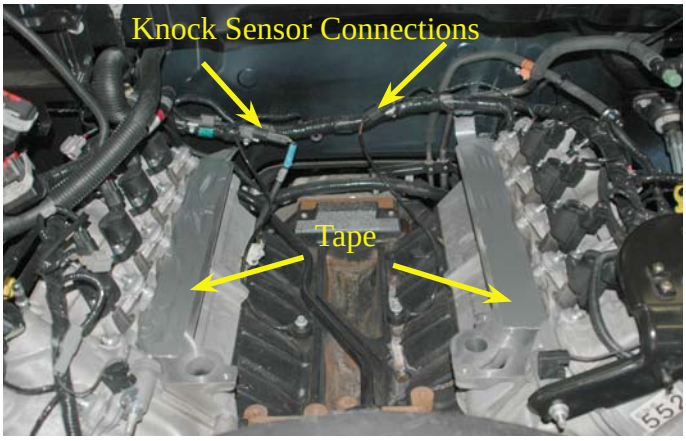
78. Install the angle fitting of the drain assembly into hole in the bottom of the supercharger manifold. Use some Teflon tape or “pipe dope” to seal the treads.



79. Rotate the angle fitting so that the drain hose will point to the passenger (right) side rear corner of the manifold.

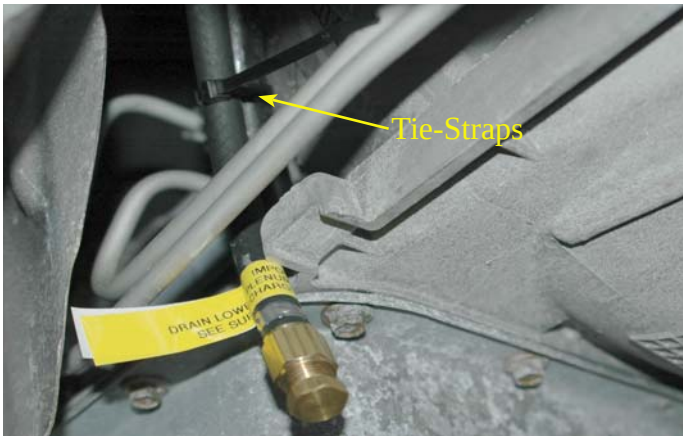


80. Prior to installing the supercharger assembly, remove the tape covering the ports and reconnect the knock sensor connections.



81. With the help of an assistant carefully set the supercharger and manifold assembly in place. **Do not** use the black plastic bypass canister as a lifting point. This is *pre-set* from the factory and can be damaged if you lift with it. Route the manifold drain tube down behind the engine on the passenger side.

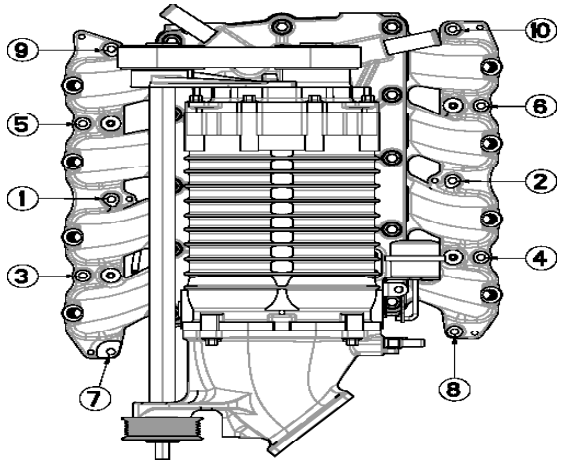
82. From underneath the vehicle, attach the manifold drain tube to the transmission fill tube with the tie-straps provided. It is recommended that at every engine oil service the drain plug in the end of the hose be removed, the hose allowed to drain and the plug replaced.



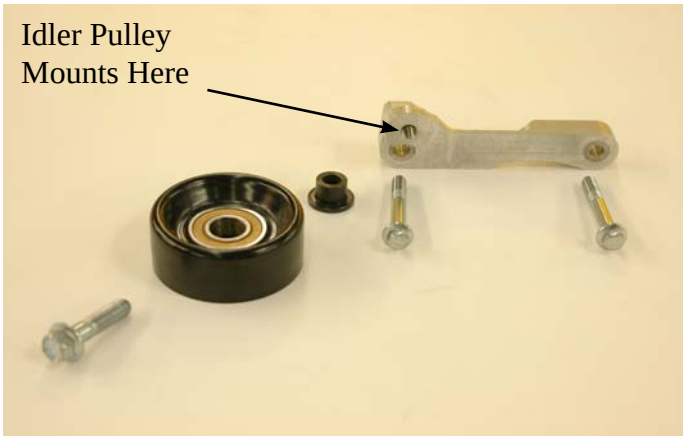
83. Install the water manifold into place.

84. Install the original 10 intake manifold bolts into place on the supercharger manifold and the four water manifold bolts into their original locations. Torque all manifold fasteners in two steps with a 10mm socket and torque wrench using the diagram shown in the next step.

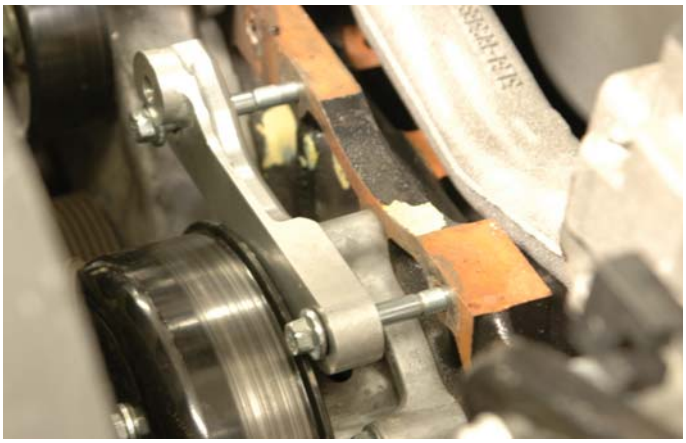
85. Torque all manifold fasteners in two steps. In the first step torque the fasteners to 18 in-lbs (2Nm). In the second step torque to 89 in-lbs (10Nm) using the diagram shown.



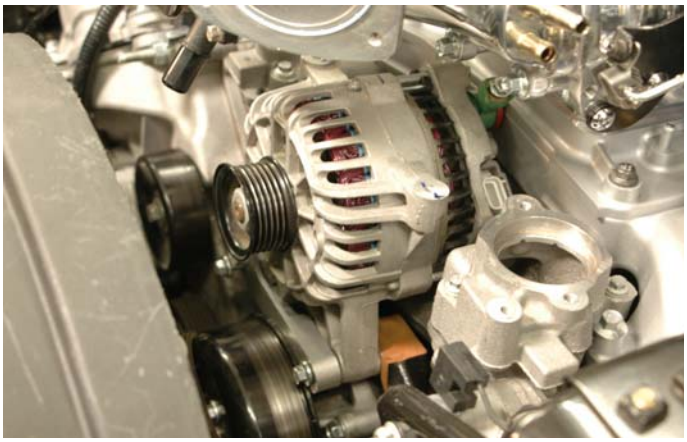
86. Here is the new drive belt idler pulley and mounting hardware.



87. Install the new bolts through the bracket and into the holes that original mounted the alternator. Note the gap between the bracket and the block, this is where the alternator will mount.



88. Install the alternator and torque the two mounting bolts to 28 ft-lbs (38Nm) with a 10mm socket and torque wrench.



89. Install the idler pulley with its spacer into the remaining hole on the mounting bracket with the bolt supplied. Torque this bolt to 28 ft-lbs (38Nm) with a 15mm socket and torque wrench.

90. Re-install the thermostat and seal O-ring into the water manifold. Torque the thermostat fasteners to 89 in-lbs with a 10mm socket and torque wrench.

91. Re-install the alternator bracket with the three original bolts. Tighten the bolts and torque them to 106 in-lbs (12Nm).

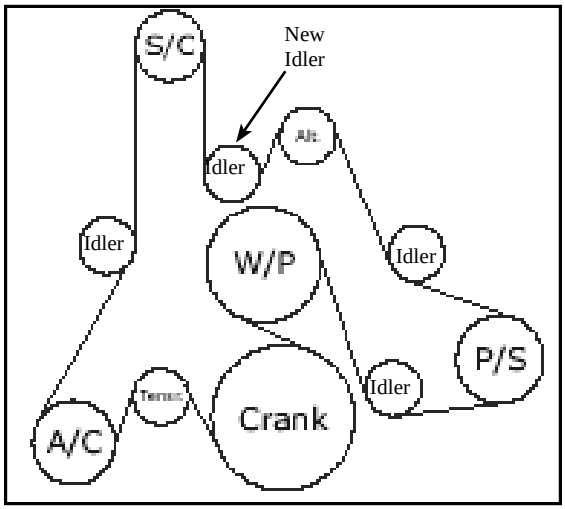
92. Install the alternator control connector on the alternator.

93. Locate the new intercooler wiring harness and pass the red power connection under the boot of the alternator cable connection.

94. Re-install the alternator cable connection AND the intercooler power connector onto the B+ terminal on the alternator. Replace the nut and tighten it securely with a 10mm wrench. Pull the boot over the terminal to cover it. Secure the alternator cable to the alternator bracket using one of the tie-straps supplied.

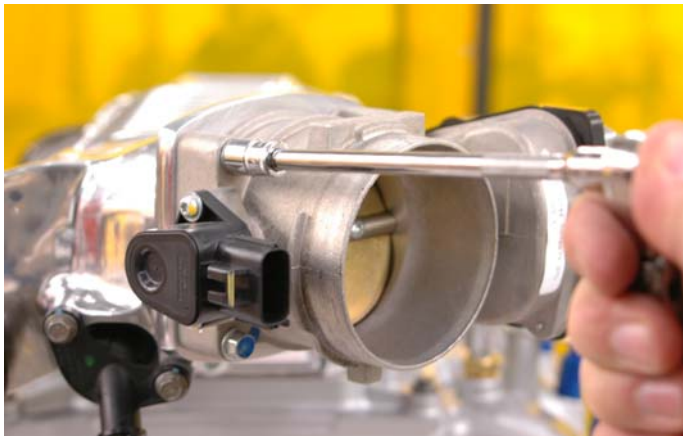
95. Here is the new drive belt routing diagram.

Drive Belt= Gates #K061265



96. Using a “breaker bar” or a long 1/2” ratchet wrench, relieve the tension on the tensioner arm and install the new drive belt using the belt diagram provided.

97. Install the throttle body onto the inlet manifold with the TPS on the passenger (right) side using the original bolts. Tighten all four bolts and torque them to 106 in-lbs (12Nm).

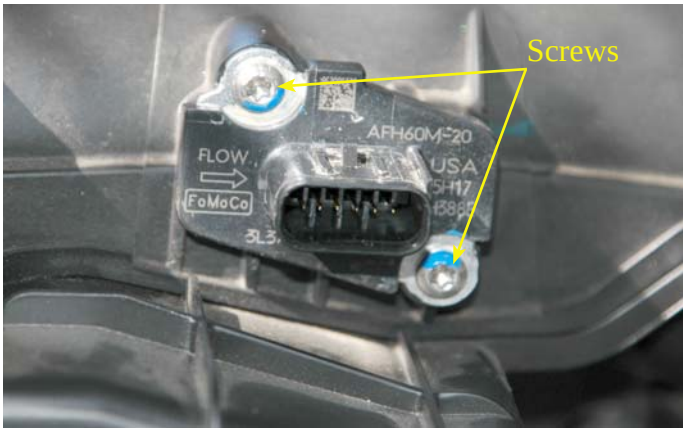


98. Assemble the new upper coolant tube and hoses by installing the 45 degree hose on the end of the tube with the 120 degree bend and the short, straight hose on the other as shown.

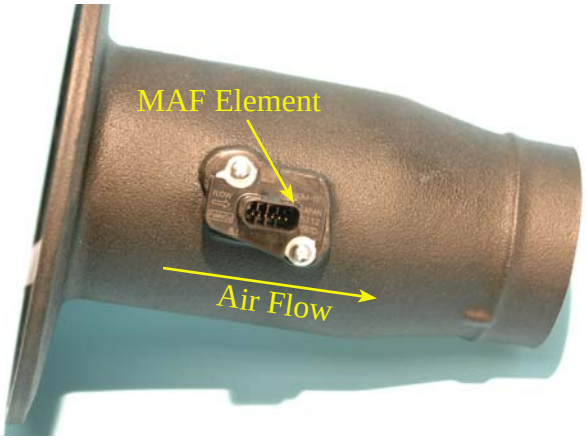
99. Install the coolant tube assembly onto the thermostat housing barb.

100. Install the remaining end of the tube assembly onto the upper radiator barb. Tighten all clamps securely. Replace the radiator cover with its six fasteners.

101. Carefully remove the Mass Air Flow (MAF) element from the top of the air box by removing the two screws with a T-20 Torx driver.



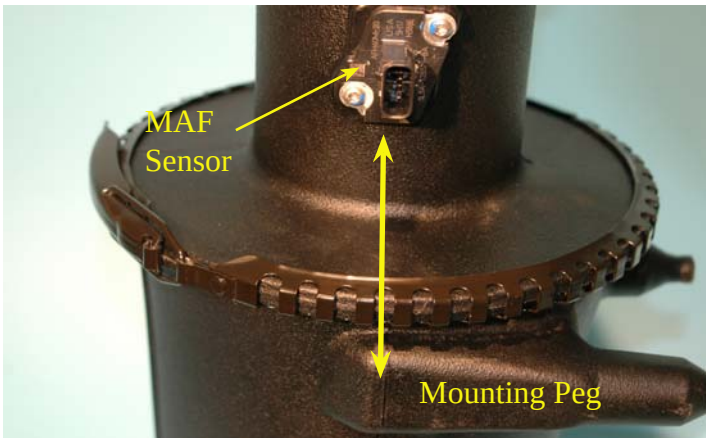
102. Assemble the MAF element into the new MAF tube with the original screws. Note the direction of the “FLOW” as shown on the MAF element mounting flange, this should point towards the small opening of the MAF tube.



103. Install the supplied air filter to the air box as shown.

104. Assemble the MAF tube to the air box as shown. Secure the air box to the MAF tube with the supplied band clamp.

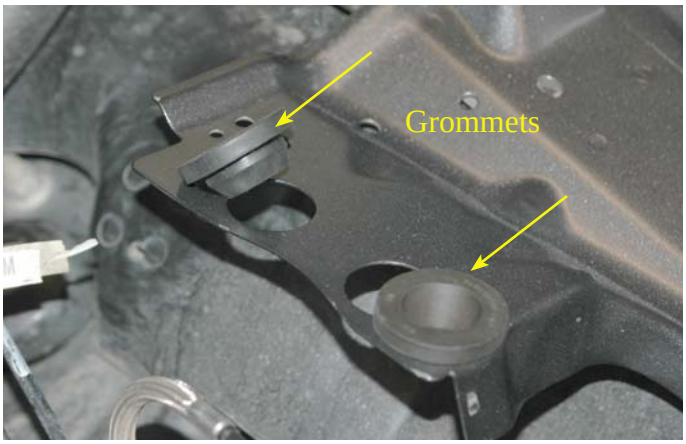
105. Loosen the air filter band clamp and rotate the MAF tube so that the MAF sensor points to the mounting peg on the air box.



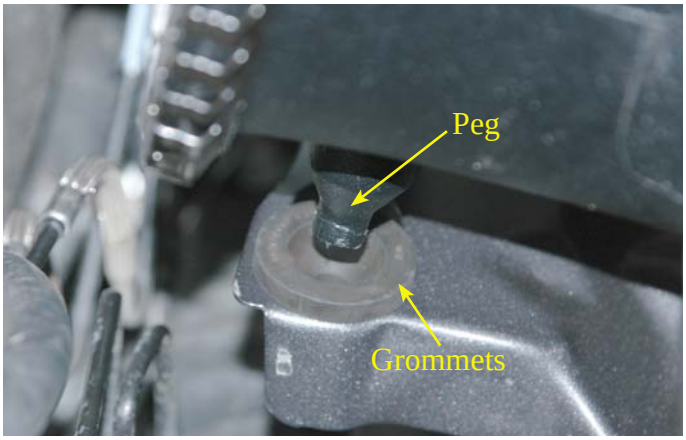
106. Attach the length of flexible air hose to the side inlet on the air box. Secure the hose with the #48 hose clamp supplied.

117. Install the supplied bellows firmly onto the air and MAF tubes, tighten the clamps securely.

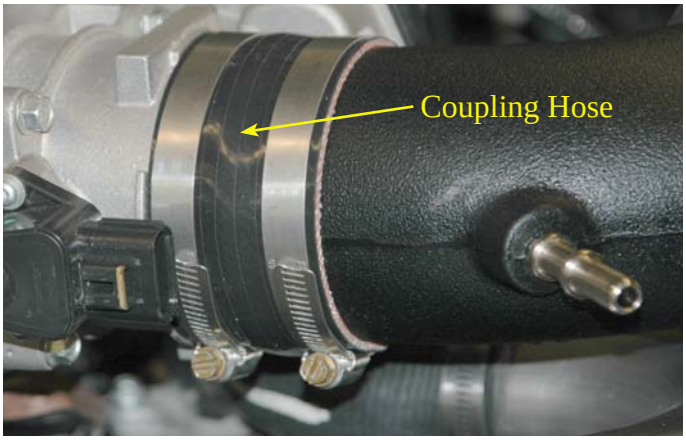
108. Install the two rubber grommets supplied on to the air filter bracket located on the driver side inner fender.



109. Carefully align the mounting pegs on the bottom of the air box assembly with the grommets on the air filter bracket and press the complete air filter assembly into place.



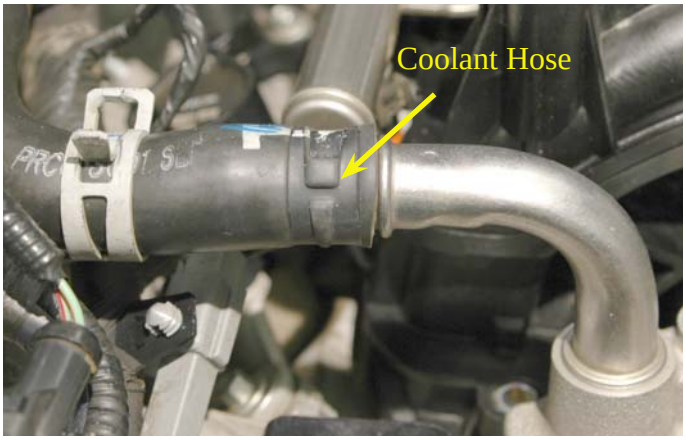
110. Install the short coupling hose onto the throttle body. Secure it with the #60 clamps supplied.



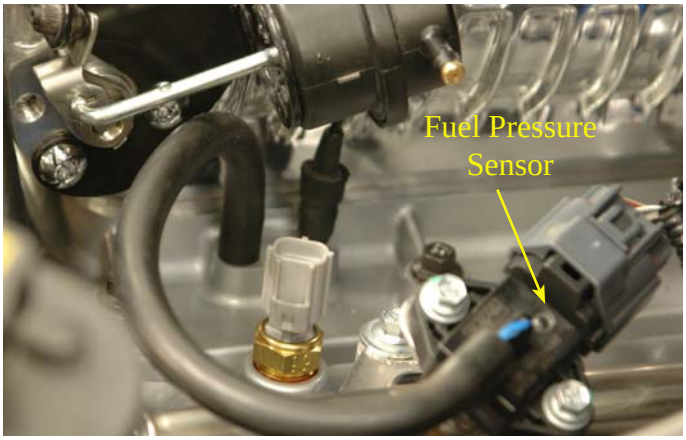
111. Route the air hose into the opening in the radiator support behind the driver side headlight.

112. Here is the complete air filter assembly installed.

113. Re-install the coolant hose to the water manifold and secure it with the spring clamp.

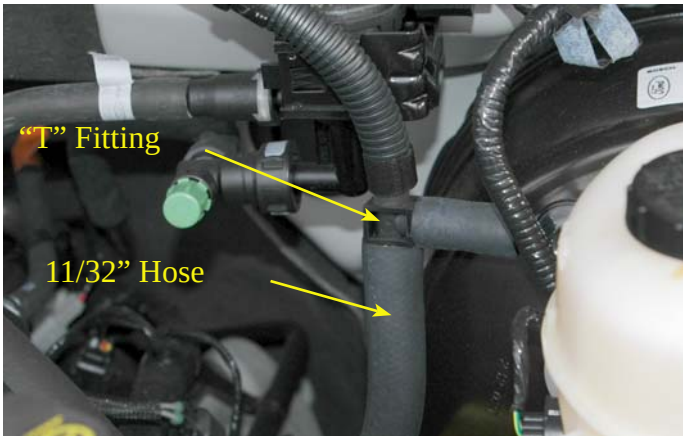


114. Connect one end of the 10” length of 1/4” hose supplied to one of the small barbs located below the bypass canister on the supercharger manifold. Connect the remaining end of the hose to the Fuel Pressure Sensor barb located on the fuel rail as shown. Note: Either one of the small barbs can be used for a optional “boost gauge” connection.

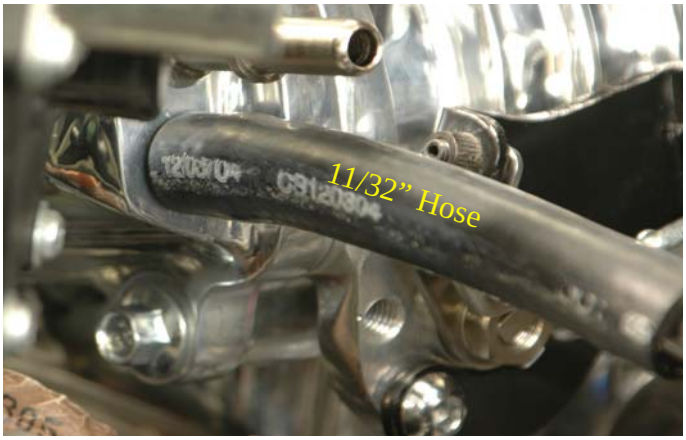


115. On 2WD applications connect one end of the 11/32” hose supplied to the brake check valve.

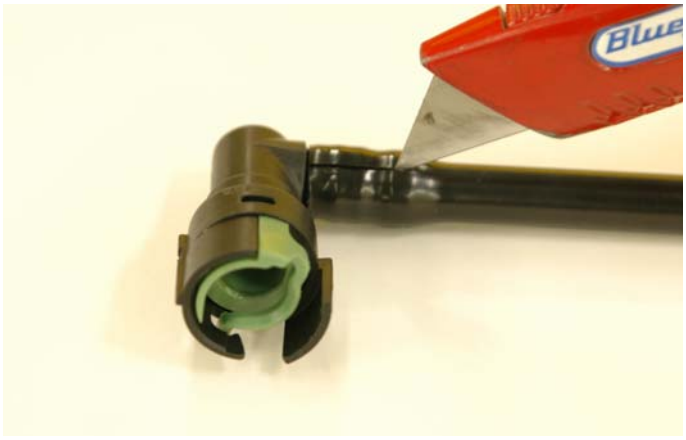
116. On **2005-2006** 4WD applications connect the 11/32” hose to the lower barb of the “T” fitting.



117. Connect the remaining end of the 11/32” barb located on the driver side of the inlet manifold as shown.

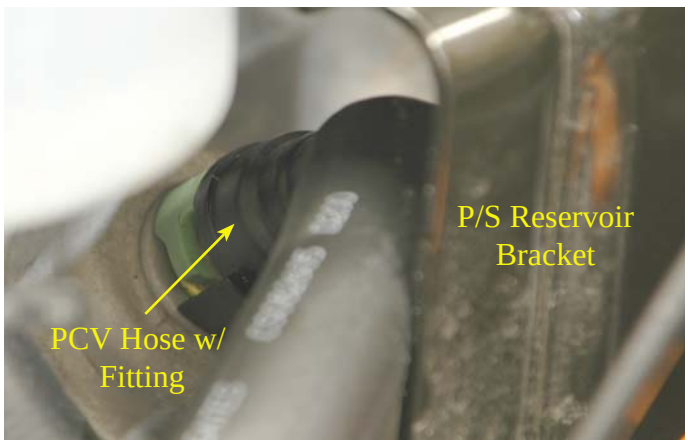


118. Using a shop knife cut the plastic tubing on the original PCV lines to free the plastic end fittings.

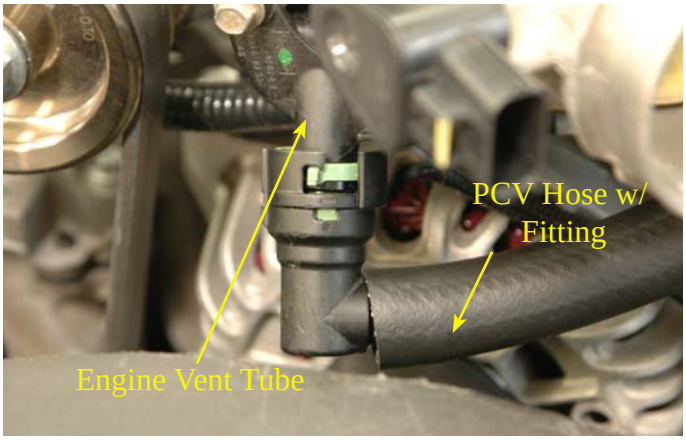


119. Connect the 90 degree PCV fittings to a 18” length of 5/8” PVC hose supplied as shown.

120. Connect one end of the new 18” PCV line to the driver side valve cover barb. Route the hose under the P/S fluid reservoir bracket toward the front of the vehicle.



121. Connect the remaining end of the new 18” PCV line to the engine vent tube on the front of the inlet manifold.



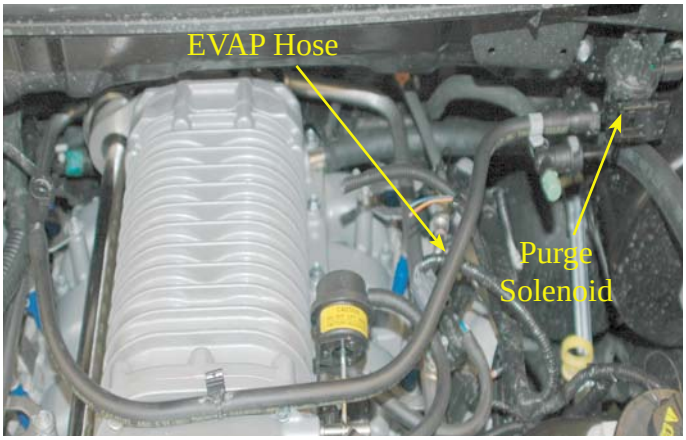
122. Locate the remaining PCV line and remove the end fittings from the plastic tube.

123. Connect the PCV fittings to a 29” length of the 3/8” PCV hose.

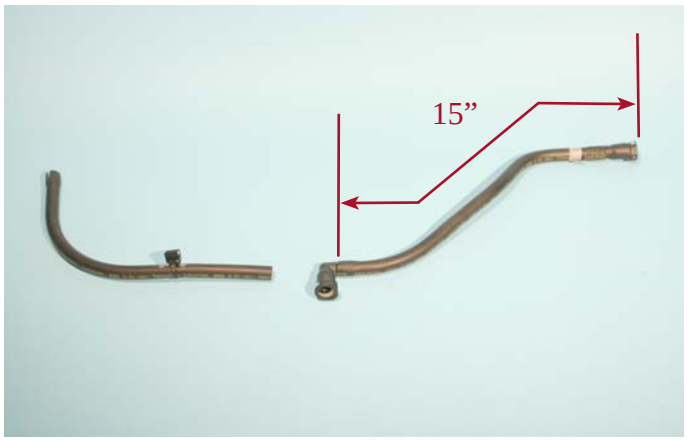
124. Connect the end of the new 29” PCV line to the passenger side valve cover barb. Route the hose toward the front of the vehicle.

125. Connect the remaining end of the new 29” PCV line to the barb on the front of the new air tube assembly.

126. Locate the EVAP hose that connects to the purge solenoid on the fire wall.

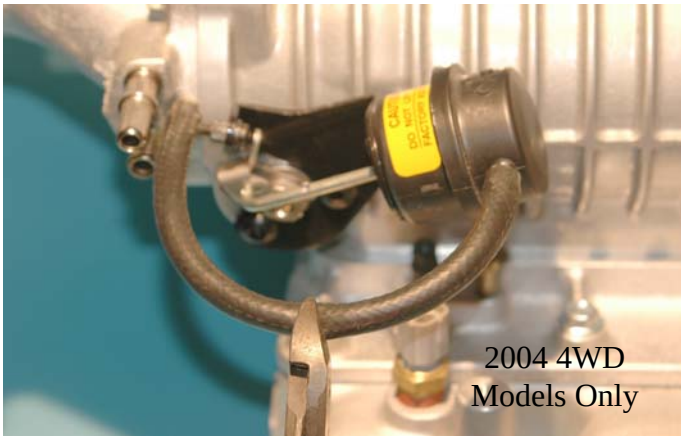


127. Remove the 90 degree fitting from the end of the hose. As the hose in the new location will be too long, it must be shortened. Pull the hose straight and measure 15” from the end of the hose with the straight fitting and cut it to length. Install the 90 degree fitting into the new, cut end.

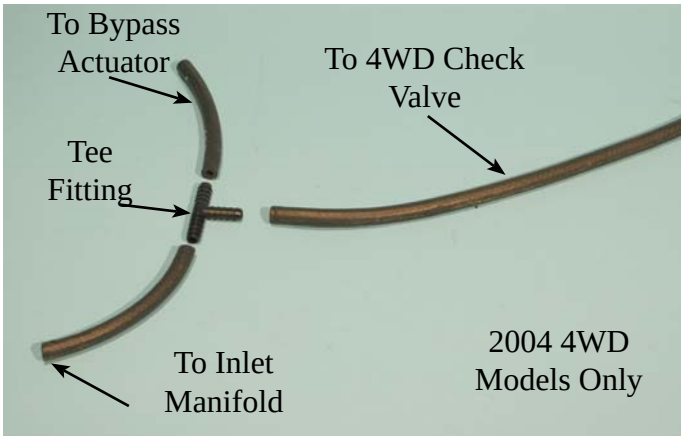


128. Install the new shorten EVAP hose with the 90 degree fitting on the inlet manifold barb above the brake hose connection. Connect the straight fitting in its original location on the purge solenoid.

129. **2004 4WD models only.** Cut the hose that connects the inlet manifold to the bypass actuator in the middle of its length.

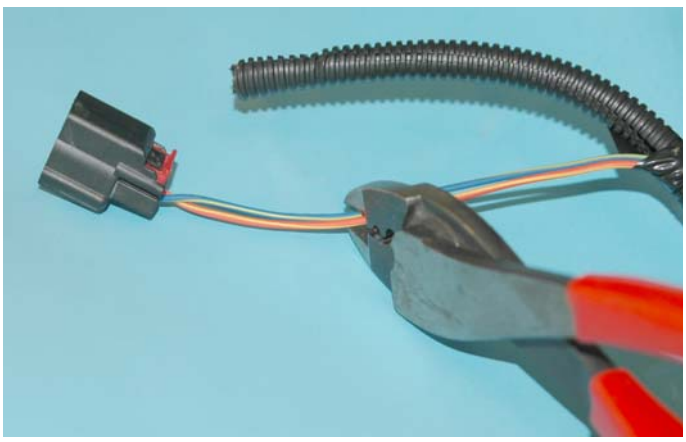


130. **2004 4WD models only.** Install the 1/4" "Tee" fitting supplied into the hose that connects the inlet manifold to the bypass actuator. On the remaining barb of the "Tee" fitting connect the hose that leads to the 4wd check valve on the right (passenger) side of the fire wall.

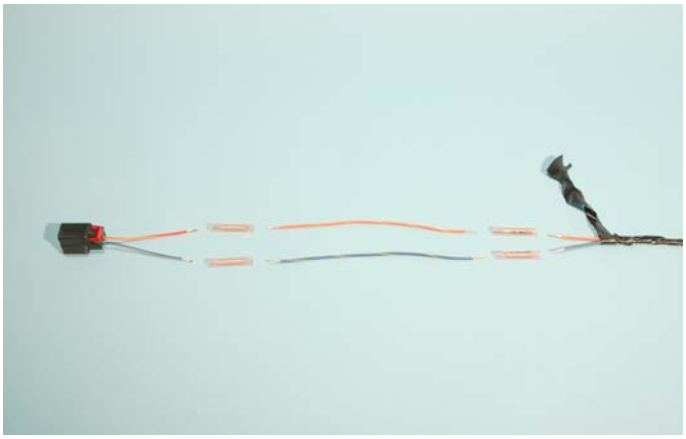


131. Locate the Electronic Throttle Control (ETC) connector on the harness and peel back the tape and split loom.

132. Approximately two inches from the connector, cut the wires, as they will be extended using the color-coded wires and crimp/shrink connectors supplied.



133. Install the crimp/shrink connectors by stripping a 1/4” of insulation off each end of the wires. Insert one end of the wire into the crimp shrink connector and crimp it securely. Using a heat gun or blow-dryer set on high, shrink the plastic covering of the connector until the plastic covering completely around the wire. **Crimping the connector alone is not enough to ensure a permanent connection; you must shrink the plastic covering!**

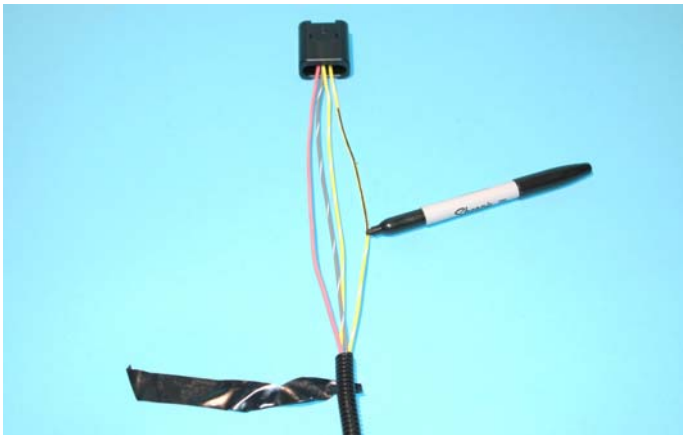


134. Here is the extended ETC harness, cover it with the split loom supplied.

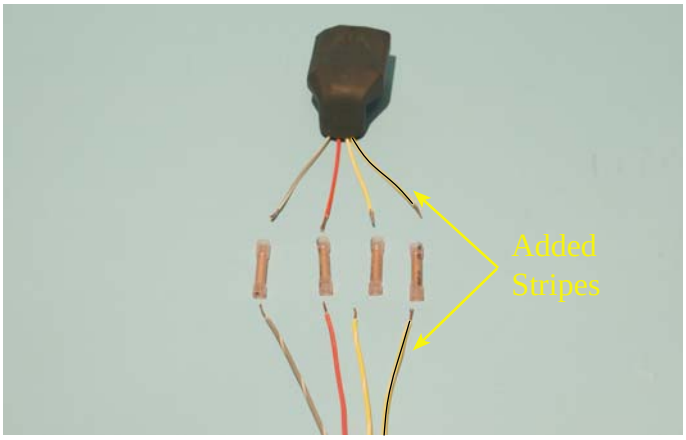
135. Install the ETC connector onto the throttle body.

136. Locate the Throttle Position Sensor (TPS) connector on the harness and peel back the tape and split loom.

137. Peel the tape and split loom back from the TPS connector. Examine the wires and notice that there are TWO yellow with white wires. Before cutting all the wires use a felt tip marker to apply another stripe to ONE of the exposed yellow/white wires. **Even though the two yellow/white wire are the same color, they cannot be interchanged when extending the wires**. Adding the additional stripe will ensure that the connections remain correct.



138. Extend the wires using the color-coded wires and crimp/shrink connectors supplied. Install the connectors as noted before. Be sure to add a additional stripe to the extention wire for the previously marked yellow/white wire. Ensure that all connections are correct and that the two yellow/white wires are connected properly and not mixed.



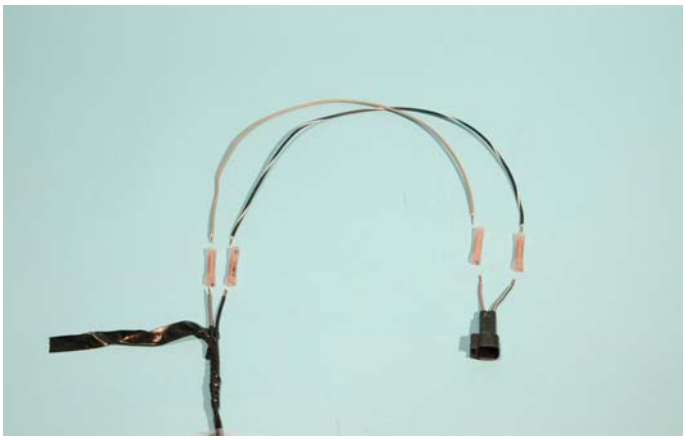
139. Cover the extended harness with the split loom supplied.

140. Install the TPS connector onto the throttle body.

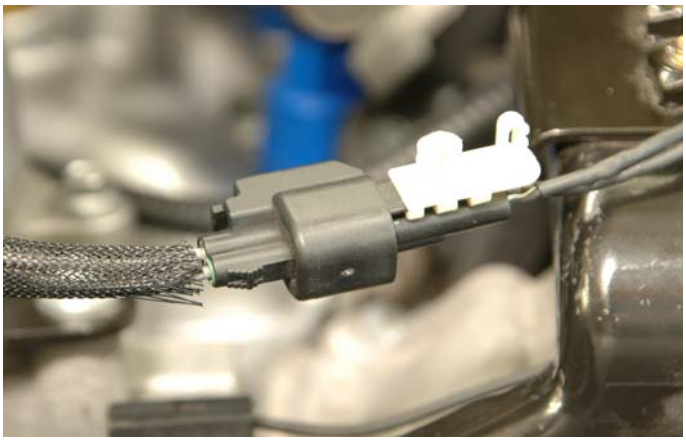
141. Locate the PCV vent tube electrical connector on the harness and peel back the tape and split loom.

142. Approximately two inches from the connector, cut the wires.

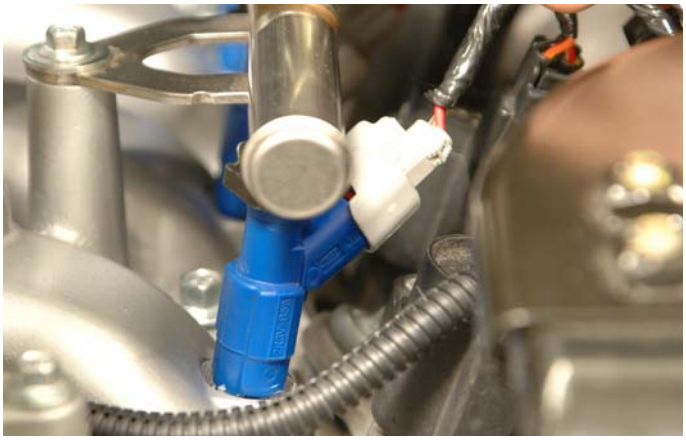
143. Extend the wires using the color-coded wires and crimp/shrink connectors supplied. Install the connectors as noted before. Cover the extended harness with the split loom supplied.



144. Connect the extended harness to the engine vent tube connector

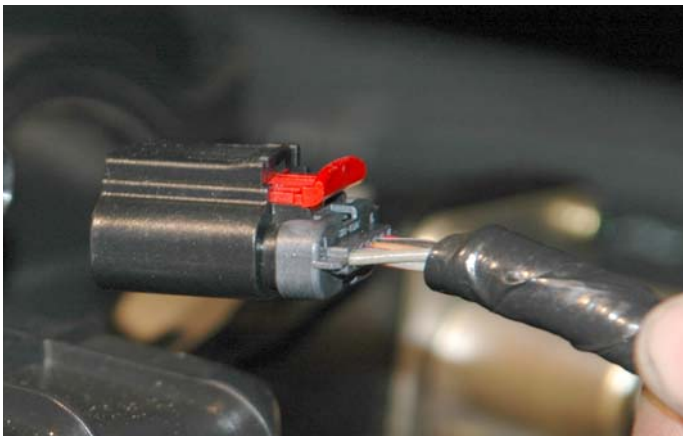


145. Install all eight fuel injector connectors onto the injectors. Take care not to rotate the injectors from their 90 degrees from the fuel rail position.



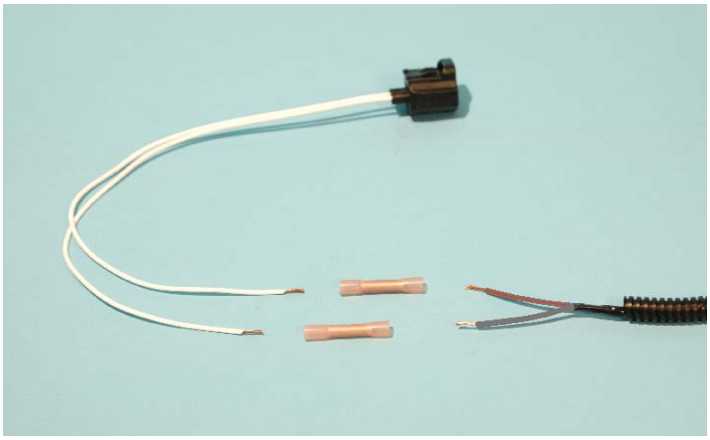
146. Install the fuel pressure connector to the sensor on the fuel rail.

147. Locate the Mass Air Flow (MAF) connector on the harness and peel back the tape and split loom.

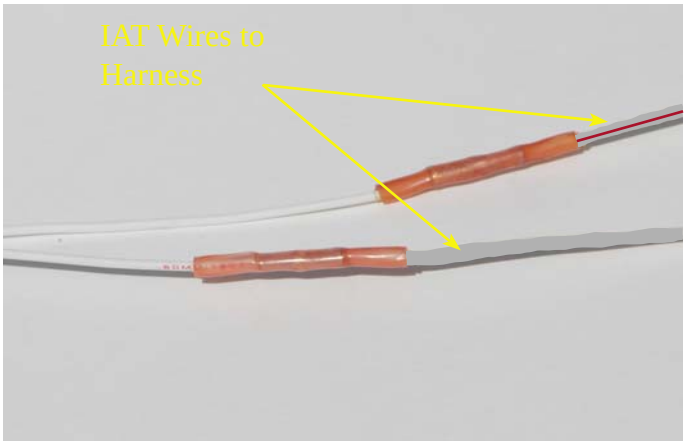


148. Approximately two inches from the connector, cut ONLY the GREY and GREY with Red striped wires. These are the Intake Air Temperature (IAT) wires.

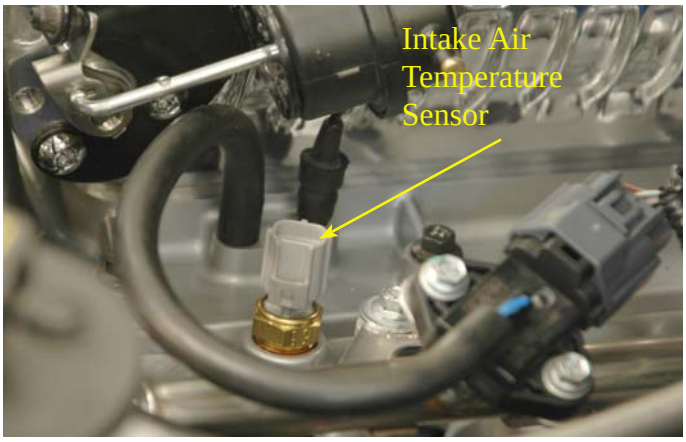
149. Install the new IAT connector onto the wires leading to the harness, DO NOT connect the IAT harness to the GREY wires leading to the MAF connector. The grey wires at the MAF connector will no longer be used. Using the crimp/shrink connectors supplied. Either white wire can be connected to the GREY wires. Install the connectors as noted before.



150. When you are finished cover the wires and connectors with the split loom supplied.

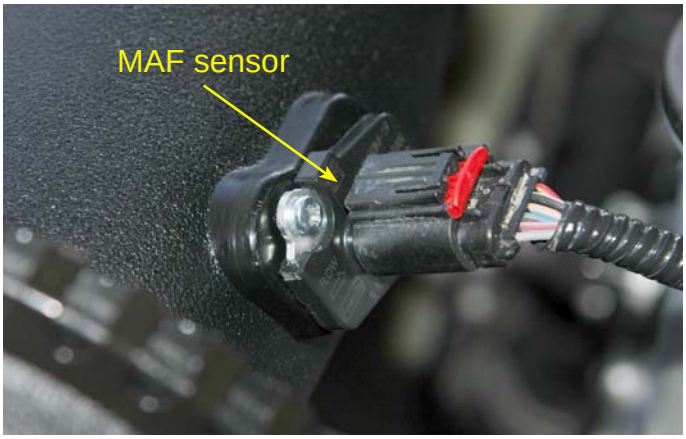


151. Install the new IAT sensor connector onto the sensor on the supercharger manifold.

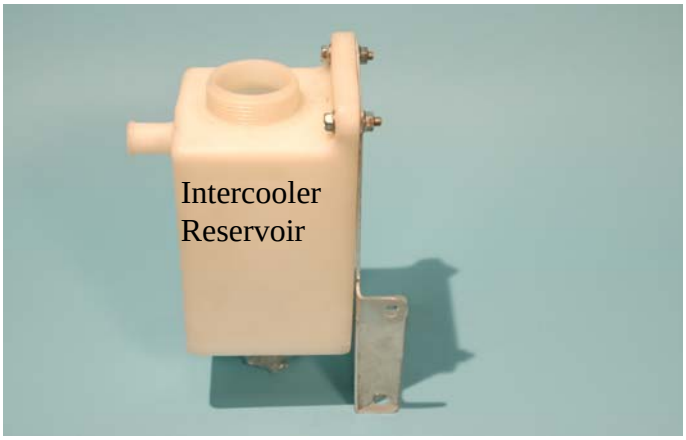


152. Cover the remaining MAF wires with the original split loom to the MAF connector.

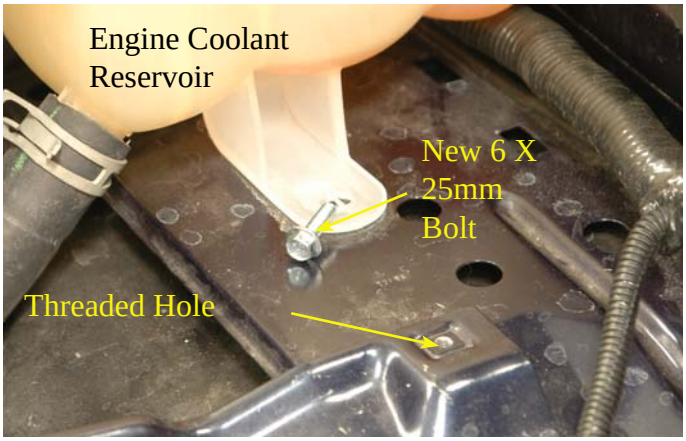
153. Connect the MAF connector to the relocated MAF sensor in the air tube assembly.



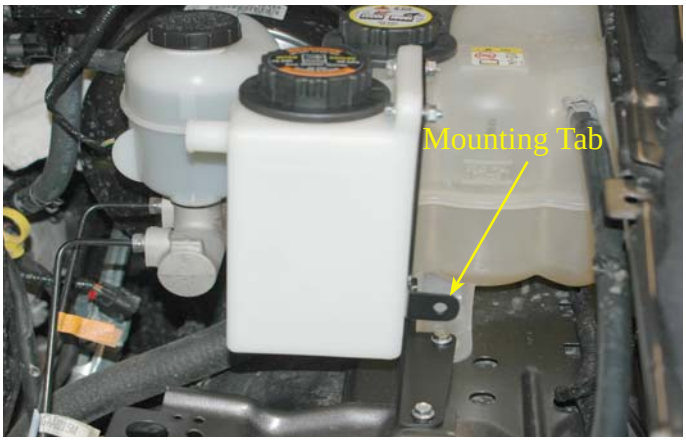
154. Assemble the intercooler reservoir to the mounting bracket with the supplied 6mm x 25mm bolts with nuts, and tighten them securely with a 10mm wrench.



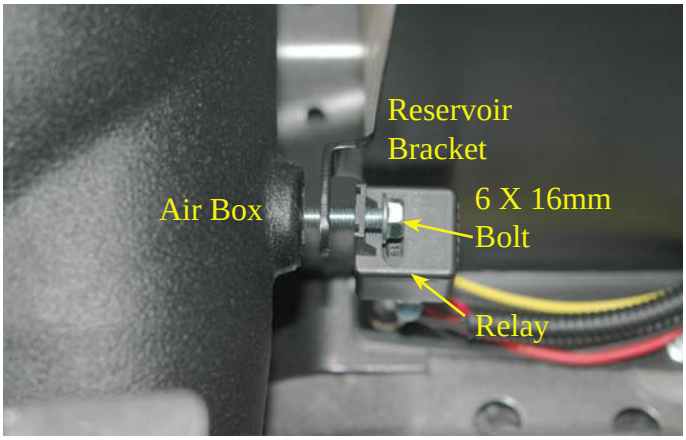
155. On the driver side (left) of the engine compartment, remove the bolt that secures the foot of the engine coolant reservoir with a 8mm wrench. This bolt will be replaced with a 6mm X 25mm bolt supplied. Note the threaded hole near by in the top of the inner fender structure. These two locations are where the intercooler reservoir bracket will mount.



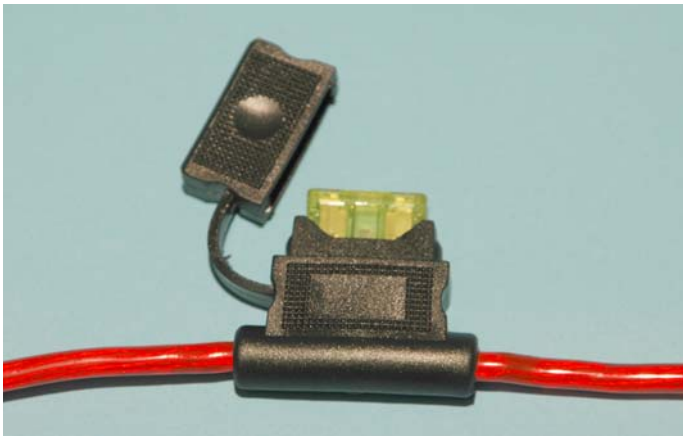
156. Mount the intercooler reservoir bracket on top of the foot of the engine coolant reservoir with the supplied 6mm X 25mm bolt. Install the 6mm x 16mm bolt supplied through the remaining hole in the bracket into the threaded hole in the inner fender structure. Tighten the bolts securely with a 10mm wrench. Note the mounting tab on the front edge of the bracket. This will attach to the air filter with a 6mm x 16mm bolt.



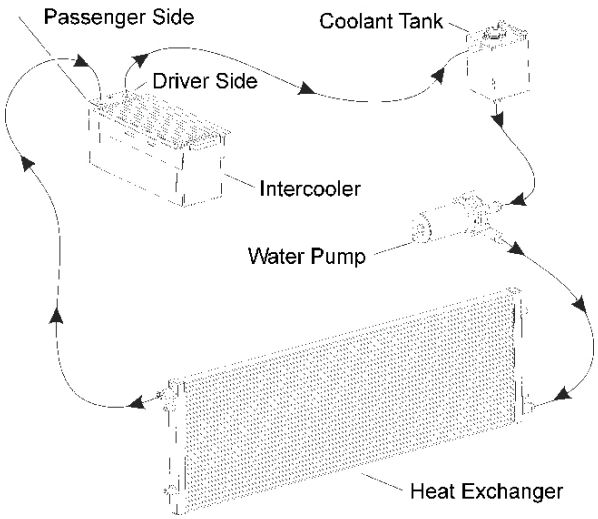
157. Attach the reservoir bracket to air filter with the 6mm X 16mm bolt supplied. Pass the bolt through the mounting tab of the intercooler pump relay then the reservoir bracket into the threaded hole in the air box. Tighten the bolt securely with a 10mm wrench.



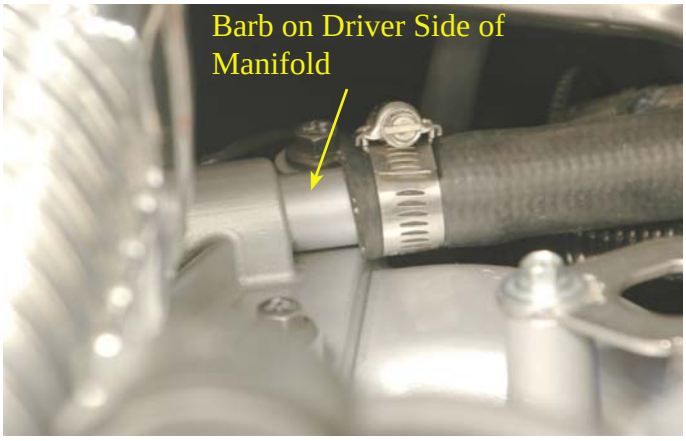
158. Install the 15 amp fuse supplied into the relay fuse holder and cover it with the attached cap.



159. Here is a diagram of the intercooler system plumbing, note the different connections.



160. Starting with the intercooler barb on the left (driver) side of the manifold, connect the long leg of the 36" X 4" X 3/4" "elbow" hose supplied to the barb and secure it with a #10 or spring clamp supplied.

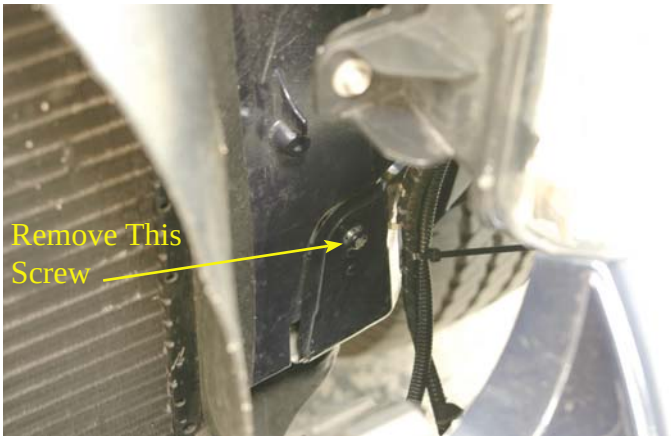


161. Connect the remaining leg of the elbow hose to the upper barb of the intercooler reservoir with a #10 or spring clamp.

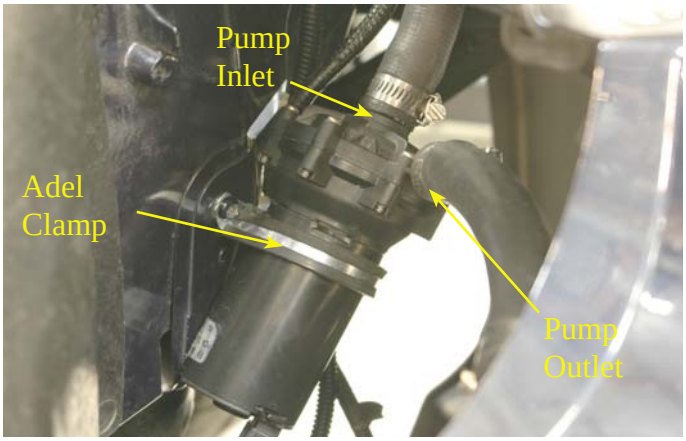
162. Using the 4” X 18” X 3/4” “elbow” hose supplied, cut 2” from the short end.

163. Connect the shorten end of the elbow hose to the lower barb of the intercooler reservoir with a #10 or spring clamp.

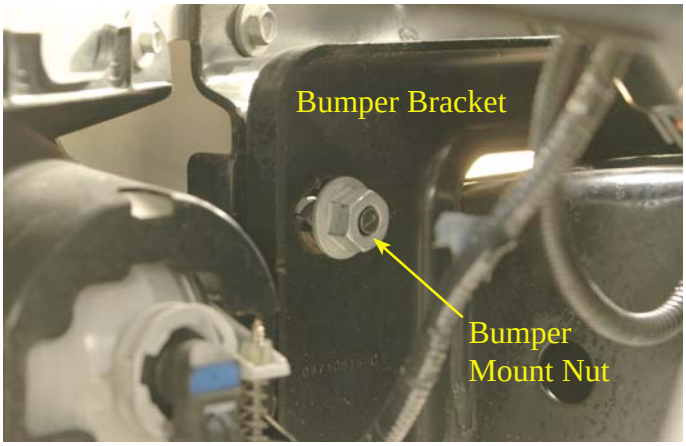
164. Below the left head light, on the front face of the radiator support locate the cross head screw shown and remove it with a screwdriver



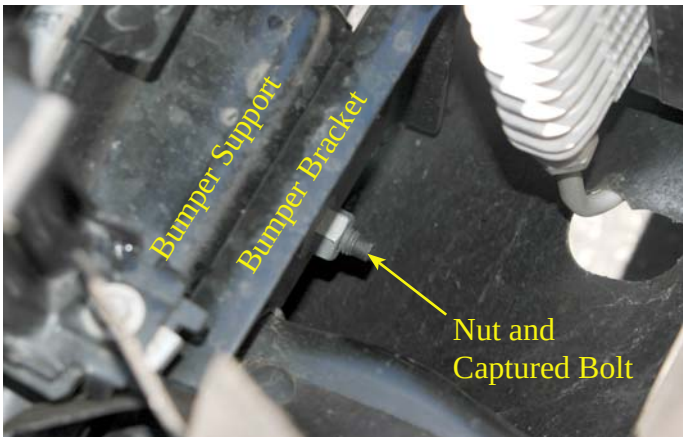
165. Mount the intercooler coolant pump using the Adel clamp supplied. Pass the previously removed screw through the clamp and mount the pump in the position as shown. Tighten the screw securely. Connect the remaining end of the elbow hose to the upper inlet barb of the pump. From the 18" elbow hose, connect the short end to the pump outlet barb. Secure both hoses with a #10 or spring clamp supplied.



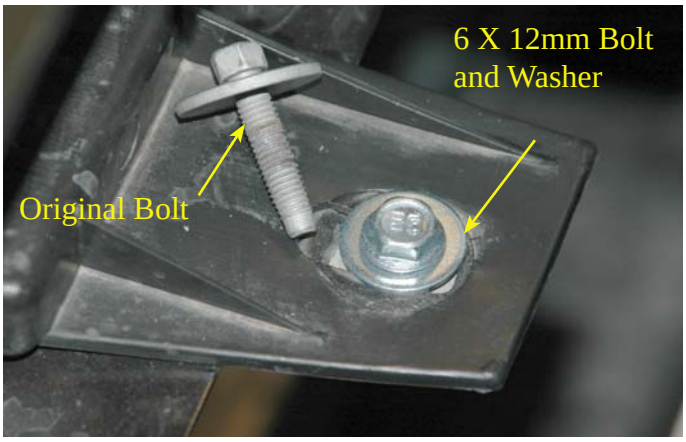
166. From inside the fender well on each side of the vehicle, locate the bumper mounting nuts shown. Only loosen the nut, but do not remove it.



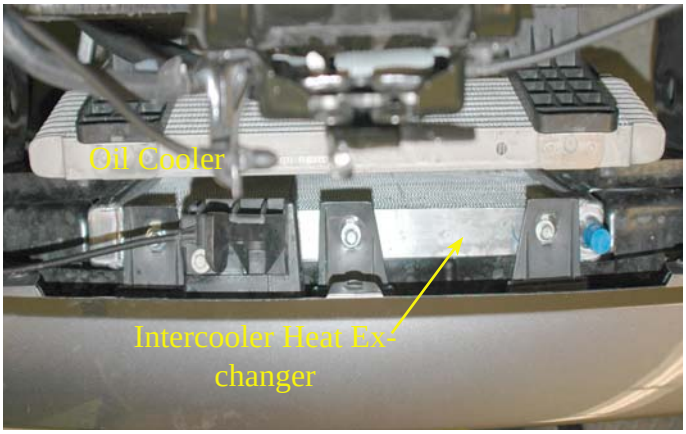
167. Below the oil cooler on the bumper bracket, remove the nut and captured bolts from their holes.



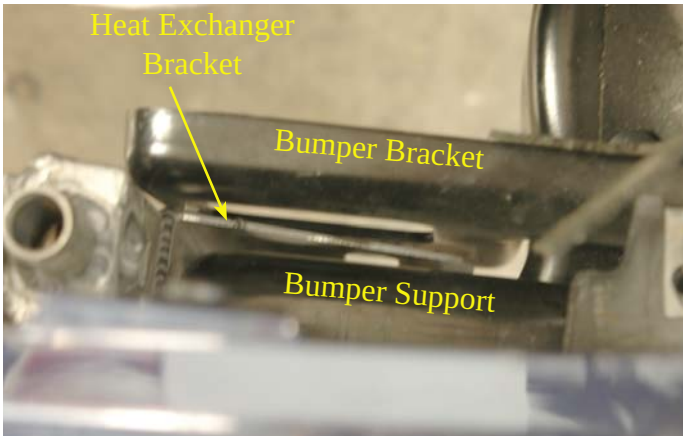
168. Along the back edge of the bumper are three bumper cover mounting tabs. Remove the original, long bolts and replace them with the 6mm X 12mm bolts and washers supplied.



169. From below the vehicle install the intercooler heat exchanger into position by placing the heat exchanger mounting brackets between the bumper and mounting bracket.



170. The heat exchanger mounting bracket will "sandwich" between the bumper and bumper mounting bracket. Once the heat exchanger is in place, replace the two bolts previously removed, re-adjust the bumper position and torque all four nuts to 70 ft-lbs (90Nm).

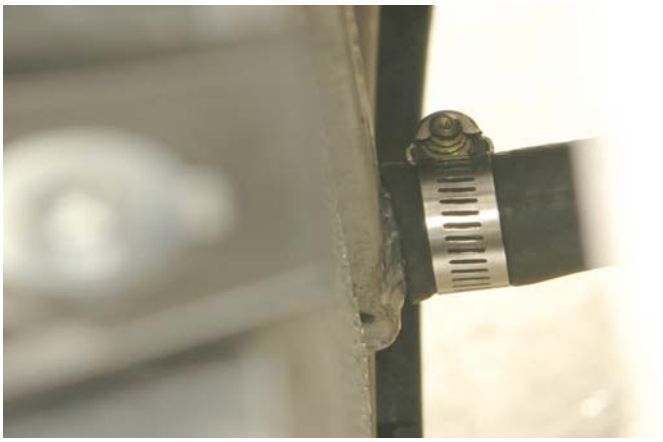


171. Here is the heat exchanger installed.

172. Connect the remaining end of the previously installed 18" "elbow" hose to the upper barb of the heat exchanger located on the driver side. Secure the hose with a #10 or spring clamp supplied.

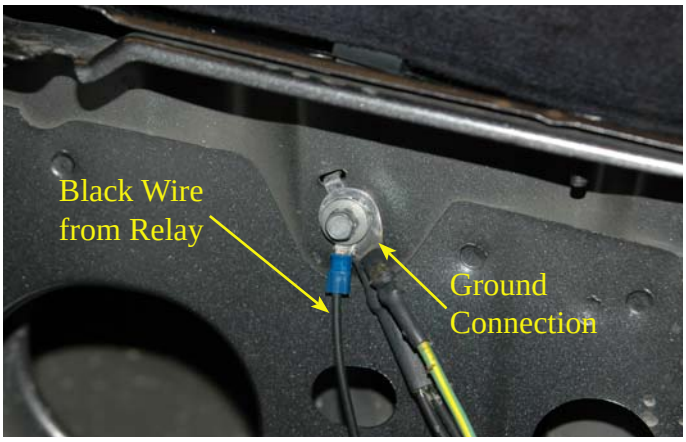
173. Locate the end of the 60” hose previously installed on the right side intercooler barb before the supercharger was installed on the engine. Route this hose forward to the right side of the heat exchanger.

174. Connect the remaining end of the 60” hose to the lower heat exchanger barb and secure it with a #10 or spring clamp supplied.

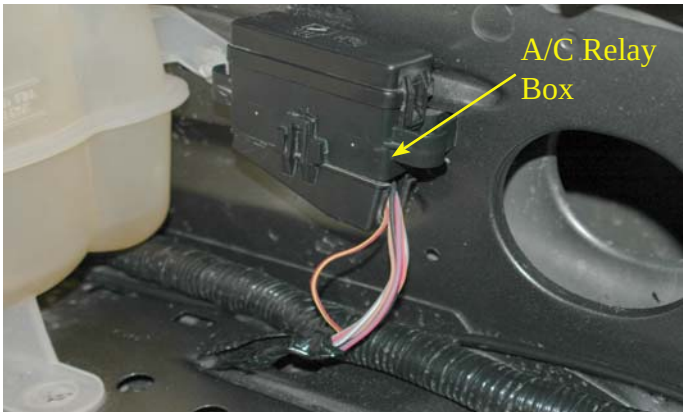


175. Route the RED and BLACK wires with the pump electrical connector from the pump relay forward to the intercooler pump. Plug the connector into the end of the pump.

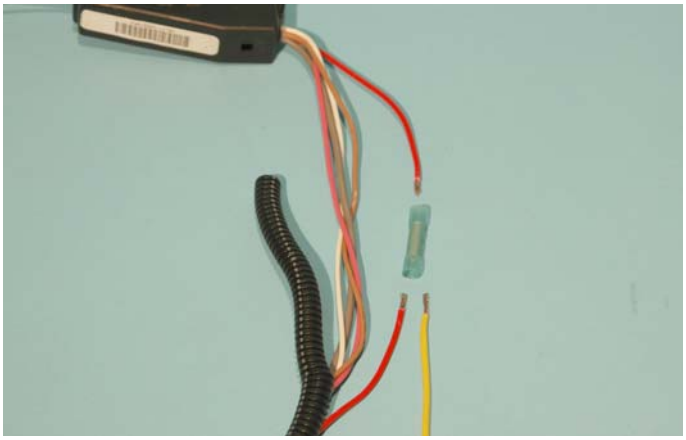
176. Locate the harness ground connection located on the inner fender, just ahead of the intercooler reservoir. Install the BLACK (Ground) wire by removing the bolt with a 8mm wrench. Place the bolt through the eye of the black wire ring connector and re-install the bolt tightening it securely.



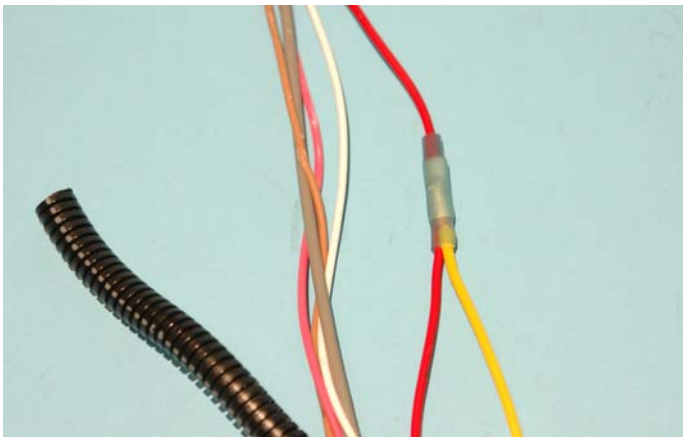
177. Locate the air conditioning relay box on the driver side inner fender well. Peel the tape and split-loom back from the harness as shown and locate the RED wire with the YELLOW stripe.



178. Cut the RED wire with the YELLOW stripe. Strip a 1/4" of insulation off each end of the wire. Use a crimp/shrink connector to connect the RED/YELLOW wire to the solid YELLOW wire from the relay.

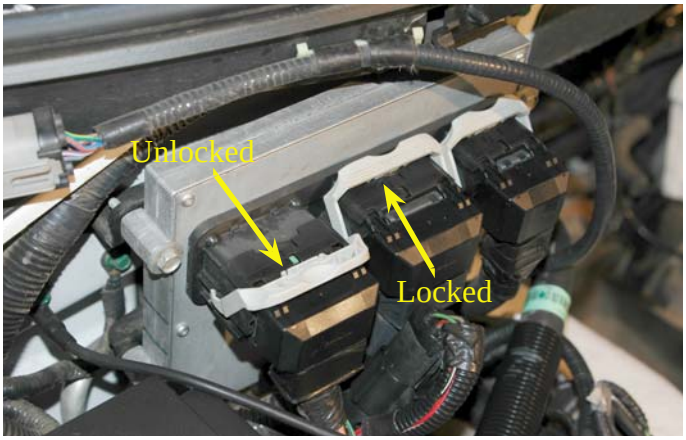


179. Install the crimp/shrink connectors by inserting one end of the RED/YELLOW wire into each end of the crimp shrink connector. Into one end of the connector, insert the YELLOW wire from the relay. Crimp both ends of the connector securely. Using a heat gun or blow-dryer set on high, shrink the plastic covering of the connector until the plastic covering completely around the wire. **Crimping the connector alone is not enough to ensure a permanent connection; you must shrink the plastic covering!** When you are finished cover the wires and connectors with the piece of split loom supplied.

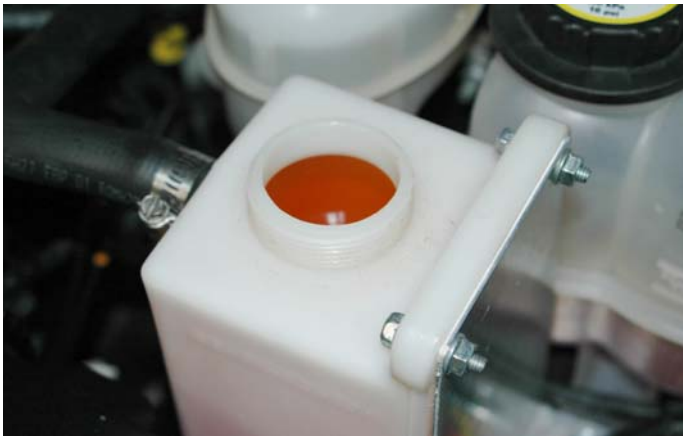


180. Re-install the re-programed computer into the vehicle with the four original bolts. Tighten them securely with a 10mm socket wrench.

181. Install the three vehicle computer connections by inserting the three connectors and pushing the grey release levers forward to lock them in place.



182. Refill the radiator and fill the intercooler system with a 50/50 mixture of antifreeze and water. Check system periodically for fluid level. The intercooler system will hold approximately 1-3/4 gal (7 liter) of antifreeze and water.



183. Re-connect the ground (-) connection at the battery and tighten the clamp securely.

184. Apply the following labels: The Yellow **Supercharger Service** label to the radiator cover below the Ford Service label. The **Burn Hazard** label to the coolant tube where it can be easily seen. The **Belt Routing** label in the blank area on the passenger side of the Ford Service label and the **Hose/Intercooler diagram** over the Ford Service belt diagram on the driver side. Apply the **Premium Fuel** label below the Hose/Intercooler label.

185. Apply the CARB EO# label over the “For Off Road Use Only” on the passenger side of the supercharger.

186. Apply the second **Premium Fuel** label to the inside of the fuel cap door.

187. Start the vehicle for 5 seconds and shut off. Check the supercharger installation for fuel leaks and fan-supercharger belt alignment. Check radiator and intercooler reservoir fluid levels.

188. Test drive vehicle for the first few miles under normal driving conditions, listen for any noises, vibrations, engine miss fire or anything that does not seem normal. The supercharger does have a slight whining noise under boost conditions, which is normal. Check the intercooler reservoir as air will be purged from the system in the first minutes of running and more coolant may be needed.

189. After the initial test drive gradually work the vehicle to wide open throttle runs, listen for any engine detonation (Pinging). If engine detonation is present let up on the throttle immediately. Most detonation causes are low octane gasoline still in the tank. If you have questions about your vehicles performance, please check with your installation facility or call Magna Charger at (805) 289-0044, Monday through Friday, 8am to 5pm.

Please enjoy your “Magnacharged” performance responsibly.